



OVER THE CONCEPTUAL HORIZON OF PUBLIC HEALTH: A LIVING THEORY OF TEACHING UNDERGRADUATE MEDICAL STUDENTS

by

Jacqueline Elizabeth Wolvaardt

02629135

Submitted in partial fulfilment of the requirements for the degree
PhD Curriculum and Instructional Design and Development

in the

FACULTY OF EDUCATION

at the

UNIVERSITY OF PRETORIA

Promoter: Dr PH du Toit

October 2013

Declaration of originality

Full names of student: Jacqueline Elizabeth Wolvaardt

Student number: 2629135

Declaration

1. I understand what plagiarism is and am aware of the University's policy in this regard.
2. I declare that this doctoral thesis is my own original work. Where other people's work has been used (either from a printed source, internet or any other source), this has been properly acknowledged and referenced in accordance with departmental requirements.
3. I have not used work previously produced by another student or any other person to hand in as my own.
4. I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as his or her own work.

Signature of student:

Signature of promoter:

Acknowledgments

Without the enthusiastic participation of the 822 participants this research would not have been possible. Some of the student respondents participated with imminent examination stress looming and some after an examination when fear of failure was still high. The generosity of spirit of these participants is humbling and your participation and encouragement for the student researchers who were doing the fieldwork is deeply appreciated. It is a privilege to be one of your lecturers.

My gratitude to the School of Medicine and the vice-dean of the School of Medicine in particular who not only supported the research, but participated personally in a series of interviews and who made suggestions with regard to additional data sources. Your contribution to the shaping of this research cannot be overstated.

I would like to thank the block chairs who sacrificed their time despite the clinical and academic demands that they themselves face. Each interview was an expedition of discovery for me and helped to give form and substance to the research.

To my colleagues at the SHSPH – your generosity and honesty to engage in discussion of what is at the very core of our curriculum is the foundation of this research. Few among us that are brave enough to be willing to relinquish long-held beliefs, but even fewer that do embrace the uncertainty with so much laughter. Finally a special note of gratitude for Janine Wichmann who helped with the data analysis and explanation.

Several groups of people held both the research and researcher together. These critical friends generously read reams of not-yet-completed work with no word of complaint – Karien Mostert-Wentzel, Angela Smith and Bernadette la Londe – your resilience is remarkable.

Hannelie Untiedt, Karien Mostert-Wentzel and Mariana Pietersen – our PhD peer support group was the safe space where the person and the process was accepted without question. *Amivus certus in re incerta cernitur.*

The final group is the SAFRI family. Part of this doctoral work was done under the guidance of Vanessa Burch and David Cameron from SAFRI. The SAFRI experience has been a pivotal educational and professional development experience for me and has enriched and encouraged this research. *Difficile est tenere quae acceperis nisi exerceas.*

To Barbara English who edited these many pages and who used every opportunity as an opportunity to share her wisdom of words: you remain the unsurpassed wordsmith.

My promoter Dr Pieter du Toit has been true to his promise of not abandoning me in this endeavour and has challenged my thinking and my professional development in his inscrutable fashion. My heartfelt gratitude for the freedom of academic thought and the hours of academic debate. Here is one last puzzle: *feci quod potui, faciant meliora potentes.*

Lastly my friends and family who have receded into the background over these past few years – please forgive me but I needed the time.

And in a category all of his own is my husband who bravely tried to understand my thinking and who loyally thought that my work was good – your favourite (I think made up) quote: *Diu et acriter pugnatum est, et ergo gloriamen reportare.*

Abstract

The health needs of society extend beyond the treatment of the individual and the ill. These needs are at the core of public health which addresses health at a population-level. Regulations dictate that public health must be included in the South African medical curriculum, but healthy populations hold little interest for medical students. As a result public health remains over the conceptual horizon of medical students.

At the University of Pretoria the responsibility for the inclusion of public health is the responsibility of the School of Health Systems and Public Health. Participation in the medical curriculum is a minor but important part of my educational practice. But two of my professional values – care and agency – have been denied in that practice. The central purpose of the research was to construct the meaning of my educational practice with the aim of progressive realisation of my values.

The study explored how public health is conceptualised as a subject in the medical curriculum at the University of Pretoria, the intended educational achievements of public health in the curriculum and the optimal strategies for its inclusion.

An action research living theory design made use of a concurrent embedded mixed-methods approach. Data was gathered primarily from external experts, the academic staff of the School of Medicine and the SHSPH, key academic documents and the medical students.

A constructivist grounded theory approach was employed to construct meaning from the findings. The findings revealed the effect of the historical decision to split public health and medicine and the resulting increasing distance between the disciplines. Resting on this fractured foundation is the understanding of what public health is. The understanding of public health suggests a multiple concurrent understanding that is constructed by diverse and seemingly conflicting perspectives while the discipline remains identifiable as public health.

The curricular intentions of including public health in the medical curriculum at the University of Pretoria are characterised by a varied topography that includes externally and internally imposed educational tensions, constraints and intractable contradictions. Curricular intentions revolve around ontological aspirations. The medical students'

perspectives of their educational experience in public health are surprisingly similar to those of students in other countries.

The current and imagined strategies to include public health formed the basis for the scepticism of educational orthodoxy and suggested the exploration of the dual uncontested spaces – social media and the elective experience in the medical curriculum. The findings from my innovative practice in using the elective experience challenge the notion that public health is over the conceptual horizon of medical students. A theme that runs through the narrative suggests, instead, that other conceptual horizons obscure meaningful engagement with medical students around public health.

This research is a rich account of my complex context and my connected practice and through action research I claim to live my values of care and agency. My living theory of practice as a form of meaning making could help others to look over their own conceptual horizons in search of wholeness.

Key words: public health, action research, living theory, practitioner research, curriculum development

TABLE OF CONTENTS

Declaration of originality	II
Acknowledgments	II
Abstract	IV
List of tables	IV
List of figures	XVII
Appendices	XIX
CHAPTER 1: THE LIE OF THE LAND	1
1.1 Introduction	1
1.2 Background	1
1.3 Research questions	5
1.3.1 Research aim	6
1.3.2 Research objectives	7
1.3.3 Parameters of the study	7
1.3.4 Academic implications of this study	7
1.4 Chapter outline	9
1.5 Lists of abbreviations and acronyms and definition of key terms	14
1.5.1 List of abbreviations and acronyms	14
1.5.2 List of key terms	16
CHAPTER 2: MY PROFESSIONAL LANDSCAPE	17
2.1 Introduction	17
2.2 Public health landscape	19
2.2.1 Public health as a field of study	20
2.2.2 Public health education	21
2.3 Undergraduate medical education	22
2.3.1 The first generation of reform: the Flexner Report	22
2.3.2 The second generation of reform: the focus on competencies	24
2.3.3 The third generation of reform: systems-based medical education	27
2.4 Public health in the undergraduate medical curriculum	32

2.4.1	The argument <i>against</i> public health in the undergraduate medical curriculum	33
2.4.2	The argument <i>for</i> public health in the undergraduate medical curriculum	33
2.4.3	Strategies to integrate public health in the medical curriculum	37
2.4.3.1	Macro-level strategies	38
2.4.3.2	Meso-level strategies	43
2.4.3.3	Micro-level strategies	46
2.4.4	Public health education in South Africa	48
2.4.5	Public health in the South African undergraduate medical curriculum	48
2.4.6	Public health in the University of Pretoria's undergraduate medical curriculum	52
2.4.7	Summary of the landscape of public health and public health education	56
2.5	The internal landscape of the medical student	58
2.5.1	Role modelling in medicine	58
2.5.2	Burnout amongst medical students	62
2.5.3	Agency	65
2.5.4	Summary of the internal landscape of the medical student	67
2.6	Public health values and personal values	69
2.6.1	Public health values	69
2.6.2	Personal ontological values	72
2.6.3	Personal epistemological values	72
2.6.4	Personal methodological values	73
2.6.5	Summary of public health values and personal values	74
2.7	Conclusion	74
	CHAPTER 3: MY PERSONAL LANDSCAPE	77
3.1	Introduction	77
3.1.1	Educational theories	77
3.1.1.1	Propositional theories	77
3.1.1.2	Dialectical theories	78
3.1.1.3	Living theory	78

3.1.1.4	Practitioner research	79
3.2	CONTEXT FRAMING	81
3.2.1	Extratextual frames	81
3.2.2	Intratextual frames	82
3.2.3	Intertextual frames	84
3.2.4	Circumtextual frames	85
3.3	Conclusion	87
	CHAPTER 4: MEASURING AND DIVINING	88
4.1	Introduction	88
4.2	Research questions	88
4.3	Action research	89
4.4	Research participants and ethical considerations	94
4.4.1	Data management during data gathering and data analysis	97
4.4.2	Data storage	97
4.4.3	Confidentiality and anonymity	97
4.5	Research setting	97
4.6	Research methods	98
4.6.1	Introduction	98
4.6.2	Sampling	99
4.6.3	Data gathering	99
4.6.3.1	Data gathering from my professional activities	100
4.6.3.2	Data gathering from my meta-learning process	103
4.6.3.3	Data gathering of my validation processes	103
4.6.4	Semi-structured in-depth interviews	104
4.6.4.1	Participants in the semi-structured in-depth interviews	105
4.6.4.2	Data gathering steps for the semi-structured in-depth interviews	108
4.6.4.3	Data recording of the semi-structured in-depth interviews	110
4.6.5	Workshops	110
4.6.5.1	The workshop participants	111
4.6.5.2	Data gathering steps for the workshops	112

4.6.5.3	Data recording of the workshop data	113
4.6.6	Paper-based surveys	114
4.6.6.1	The participants in the paper-based surveys	115
4.6.6.2	Data gathering via paper-based surveys	116
4.6.6.3	Data recording of the paper-based survey data	119
4.6.7	Web-based surveys	119
4.6.7.1	Description of the web-based surveys	120
4.6.7.2	Participants in the web-based surveys	121
4.6.7.3	Data gathering during web-based surveys	121
4.6.7.4	Data recording of the web-based surveys	123
4.6.8	Record review	123
4.6.8.1	Documents that formed part of the record review	124
4.6.9	Video material	125
4.6.9.1	Data recording of the video material	126
4.6.10	Social media	126
4.6.10.1	Data gathering steps in the use of social media	126
4.6.11	Reflections	128
4.6.11.1	Data recording and data management of notes	128
4.7	Data analysis	129
4.7.1	Qualitative data	130
4.7.1.1	Use of software	130
4.7.1.2	Preliminary data analysis	131
4.7.1.3	Analytic approach	132
4.7.1.4	Coding	132
4.7.1.5	Specific approaches to the document reviews	138
4.7.2	Quantitative data	140
4.7.2.1	Use of software	140
4.7.2.2	Analysis of quantitative data	141
4.8	Ensuring quality	141
4.8.1	Ensuring quality in the qualitative methods: credibility, dependability and transferability	141
4.8.1.1	Credibility	142

4.8.1.2	Dependability	144
4.8.1.3	Transferability	144
4.8.2	Ensuring quality in the quantitative methods: validity, reliability and generalisability	145
4.8.2.1	Validity	145
4.8.2.2	Reliability	146
4.8.2.3	Generalisability	146
4.8.3	Ensuring meta-quality in living theory: critical readers, validation group, and standards of judgement	147
4.8.3.1	Critical readers	147
4.8.3.2	Validation group	148
4.8.3.3	Standards of judgement	148
4.9	Delineations and limitations	150
4.10	Conclusions	151
CHAPTER 5: ORIGINS AND UNDERSTANDING		152
5.1	Introduction	152
5.2	Response rates and characteristics of the participants	154
5.2.1	The medical student respondents	154
5.2.2	The block chair interviewees	155
5.2.3	The School of Health Systems and Public Health (SHSPH) participants	156
5.2.4	External participants: the community partner and international and national experts	157
5.3	Continental drift	157
5.4	Medical student perspectives on public health	159
5.4.1	Public health as a whole	159
5.4.1.1	A holistic understanding	160
5.4.1.2	A state of being	161
5.4.1.3	A population focus	161
5.4.1.4	The scope of public health	162
5.4.1.5	Public health as research	162
5.4.2	Parts of the whole	163

5.4.2.1	Parts of the whole: a systems approach	164
5.4.2.2	Parts of the whole: a component approach	166
5.4.3	Public health as a part of medicine (or not)	169
5.4.4	Popular equivalents	170
5.4.4.1	Public health as care for disadvantaged populations	171
5.4.4.2	Public health as care for the poor	171
5.4.4.3	Public health as rural health	171
5.4.4.4	Public health as the publicly funded health sector	171
5.4.4.5	Public health as primary health care (PHC)	172
5.4.4.6	Public health as free-of-charge health care	172
5.4.4.7	Public health as family medicine	173
5.4.4.8	Public health as public health	173
5.4.5	Opinions of the first-year 'naïve' medical students	174
5.4.6	Discussion	175
5.5	Block chair perspectives on public health	176
5.5.1	The boundaries of public health	177
5.5.2	The state of public health	178
5.5.3	Discussion	180
5.6	SHSPH staff perspectives on public health	181
5.7	Global online community perspectives of public health	182
5.8	Conclusion	185
	CHAPTER 6: INTENTIONS AND ASPIRATIONS	187
6.1	Introduction	187
6.2	Curricular intent: the public health core competencies	187
6.2.1	Discussion	212
6.3	Curricular emphases at our university	214
6.3.1	Intentions of including public health in the medical curriculum	215
6.3.2	Curricular emphasis at our university: the block books	219
6.3.3	Curricular emphasis at our university: global versus local relevance	224
6.3.4	Discussion	228
6.4	Curricular constraints	230

6.4.1	Clinicians' time	230
6.4.2	SHSPH academic staff's time	230
6.4.3	Clinicians' academic interest and availability	231
6.4.4	SHSPH academic staff's interest and availability	232
6.4.5	Medical students' interest in public health	233
6.4.6	The use of golden threads	233
6.4.7	Assessment of public health	235
6.4.7.1	Elevated public health – scratching the surface for evidence	235
6.4.7.2	Embedded public health – digging for evidence	237
6.4.7.3	Assessment and learning	237
6.4.7.4	Assessment horizons	238
6.4.8	Discussion	238
6.5	Medical students' feedback and experience of public health in their curriculum	239
6.5.1	Feedback of public health in the blocks	239
6.5.2	Feedback of public health in the curriculum	242
6.5.3	Discussion	250
6.6	Conclusion	252
CHAPTER 7: STRATEGIES AND EXPLORATION		255
7.1	Introduction	255
7.2	Strategies	255
7.2.1	Strategies to repair the rift between public health and medicine	256
7.2.2	Strategies identified by the School of Medicine	258
7.2.2.1	Major and formal strategies	259
7.2.2.2	Minor and formal strategies	264
7.2.2.3	Minor and informal strategies	267
7.2.2.4	Discussion	270
7.2.3	Strategies identified by the School of Health Systems and Public Health	272
7.2.3.1	Strategies to facilitate learning	273
7.2.3.2	Strategies of engagement	279
7.2.3.3	The paradigm shift	284
7.2.3.4	Discussion	290

7.3	Exploring the uncontested space of social media	292
7.3.1	The use of social media among medical students	292
7.3.2	The link between social media use and knowledge of public health	294
7.3.3	Discussion	298
7.4	Using the uncontested space of the elective experience	299
7.4.1	The rationale for a public health elective	300
7.4.2	Designing a public health elective	301
7.4.3	The 2011 elective in public health	302
7.4.3.1	Survey response rate	302
7.4.3.2	Interest in an elective with a public health theme	303
7.4.3.3	Summary of the findings	306
7.4.3.4	Enrolment in the elective	307
7.4.3.5	Discussion	308
7.4.4	The 2012 elective in public health	308
7.4.4.1	Survey response rate	308
7.4.4.2	Interest in an elective with a public health theme	309
7.4.4.3	Summary of the findings	311
7.4.4.4	Enrolment in the elective	312
7.4.4.5	The public health elective	313
7.4.4.6	Perspectives on the success of the elective	320
7.4.4.7	Discussion	325
7.5	Conclusion	326
CHAPTER 8: THEORISING PRACTICE		329
8.1	Introduction	329
8.2	Overview of findings	330
8.3	My living theory of practice: a world with meaning	334
8.3.1	Introduction	334
8.3.2	Disrupting the <i>status quo</i>	336
8.3.3	The web of tension	337
8.3.4	Points of connection	339
8.3.5	Conceptual horizons	340

8.3.6	Agency	341
8.3.7	Transformational leadership	342
8.4	Potential significance of this research	343
8.5	Limitations and validation	344
8.5.1	Limitations	344
8.5.2	Validation	344
8.6	Suggestions for further research and practice	345
8.7	Concluding remarks	346
CHAPTER 9: THE COMPASS ROSE		347
9.1	Introduction	347
9.2	Looking North: my intellectual self	347
9.3	Looking South: my safekeeping self	350
9.4	Looking East: my emotive self	352
9.5	Looking West: my experimental self	353
9.6	Conclusion	356
List of references		358

List of tables

Table 2-1: Role Frameworks: Canada (Hodges, 2010:S39) and the United Kingdom (<i>Tomorrow's Doctors</i> , 2009:4)	26
Table 2-2: Theoretical framework for integrated learning about public health and clinical practice (Stone, 2000:13)	35
Table 2-3: My typology of strategies to include public health in the medical curriculum	38
Table 2-4: RMPHEC project – participating schools and key strategies (Maeshiro, 2010: 214-5)	43
Table 2-5: The three main areas of the Charter for Professionalism (University of Pretoria)	54
Table 2-6: Burnout and depression amongst UP medical students (2007)	64
Table 2-7: Attributes of the 'five-star doctor' (Boelen, 1993:6-7)	70
Table 3-1: My HBDI quadrant codes	84
Table 4-1: Traditions of inquiry and design approaches (adapted from Grbich, 2007:21)	90
Table 4-2: Summary of my research questions, planned professional activities, and methods	101
Table 4-3: Articulating values and their standards of judgement	103
Table 4-4: Summary of data gathering for paper-based surveys	116
Table 4-5: Steps taken to ensure the validity of the data	146
Table 4-6: Steps taken to ensure the reliability of the data	146
Table 5-1: Gender profile and year of study of survey respondents	154
Table 5-2: Profile of the respondent characteristics (Block chairs from the School of Medicine)	156
Table 6-1: Proposed public health competencies (public health sciences domain)	191
Table 6-2: Proposed public health competencies (assessment and analysis domain)	197
Table 6-3: Proposed public health competencies (partnerships, collaboration and advocacy domain)	201
Table 6-4: Proposed national public health competencies (diversity and inclusiveness domain)	203
Table 6-5: Proposed national public health competencies (communication domain)	204
Table 6-6: Proposed national public health competencies (policy and programme planning, implementation and evaluation domain)	205
Table 6-7: Proposed national public health competencies (leadership domain)	209
Table 6-8: Desired graduate attributes or behaviours associated with the proposed public health competency domains	211
Table 6-9: Public health content of block books (2010)	220

Table 6-10: Juxtaposition of global and local relevance	225
Table 6-11: Medical students' (all years) opinions on the adequacy of the teaching of various public health topics (2012)	243
Table 6-12: Likelihood of respondents to rate exposure to public health topics during degree studies as 'adequate' or 'excessive' in percentages	245
Table 6-13: Average percentages of Canadian and USA medical school graduates and University of Pretoria (UP) fifth-year medical students who felt instruction was inadequate in selected public health topics (Adapted from Maeshiro <i>et al.</i> , 2010:214)	247
Table 6-14: Respondents' level of agreement on the extent to which key values have been emphasised in their studies to date	249
Table 7-1: Demographic profile and response rate by year group of survey respondents	293
Table 7-2: Frequency of accessing various forms of social media	293
Table 7-3: Knowledge scores of all year groups	295
Table 7-4: Results of the ten-item test-your-knowledge question	297
Table 7-5: Percentage of respondents' elective workplace choices (2011)	305
Table 7-6: Percentage of respondents' elective workplace choices (2012)	311
Table 7-7: Planned participation in the 2012 elective	312
Table 7-8: Actual participation in the 2012 elective	313
Table 7-9: Activity sheet of week one of the Sediba Hope elective	316
Table 7-10: Activity sheet of week two of the Sediba Hope elective	318
Table 7-11: Respondents' opinion on the elective experience	321
Table 7-12: Respondents' perception of the value of key activities	322
Table 7-13: Respondents' opinion of the influence of the elective on their professional development	323
Table 9-1: Oral presentations	350
Table 9-2: Poster presentations	351
Table 9-3: Submitted articles	351

List of figures

Figure 2-1: My conceptual framework for this research	18
Figure 2-2: The process of role modelling (Paice <i>et al.</i> , as cited in Cruess <i>et al.</i> , 2008:719)	61
Figure 3-1: My HBDI [®] profile	83
Figure 4-1: A visionary action research model for innovating practice (Adapted from Du Toit, 2008:255)	91
Figure 4-2: My double helix of action research	93
Figure 4-3: Generating ideas in workshop 2 [Used with permission]	113
Figure 4-4: Public health elective poster 2011 (extract)	122
Figure 4-5: Public health elective poster 2012	123
Figure 4-6: Screenshot of the LinkedIn question	127
Figure 4-8: First cycle coding methods used in this study	133
Figure 4-9: Second cycle coding methods used in this study	136
Figure 5-1: The compass icon	152
Figure 5-2: Public health as a whole and contributing categories	160
Figure 5-3: Parts of the whole and contributing categories	164
Figure 5-4: Popular equivalents and contributing categories	170
Figure 5-5: Global online community of public health specialists' suggestions of metaphors or images that depict public health	184
Figure 6-1: CanMEDS roles modified for South Africa	188
Figure 6-2: Participants in the national workshop on public health competencies in the medical curriculum	189
Figure 6-3: Bloom's taxonomy (Krathwohl, 2002:212)	219
Figure 7-1: Importance of location and content when choosing an elective (number of responses) in 2011	303
Figure 7-2: Responses regarding good understanding of community health-related needs and problems (2011)	306
Figure 7-3: Importance of location and content when choosing an elective (number of responses) in 2012	309
Figure 7-4: Elective students with bags (2012)	314
Figure 7-5: Doing home visits	314
Figure 7-6: Elective students attending the OVC conference	320
Figure 9-1: My connected SAFRI family	349
Figure 9-2: Hanlie, Liz, Mariana and Karien	352

Figure 9-3: The 'purple public health flamingo' from the Disney® video clip	354
Figure 9-4: Quarterly report newsletter	354
Figure 9-5: Constructivism crayfish	355
Figure 9-6: Some seaside postcards	355
Figure 9-7: Screenshot of the xtranormal movie	356

Appendices

APPENDIX A:	MBCHB CURRICULUM OUTLINE (2013)	368
APPENDIX B:	ETHICS CLEARANCE CERTIFICATE LETTER (HS10/05/01)	370
APPENDIX C:	APPROVAL LETTER FROM THE REGISTRAR	371
APPENDIX D:	INFORMED CONSENT FORM (INTERVIEWS)	372
APPENDIX E:	INFORMED CONSENT FORM (WORKSHOPS)	376
APPENDIX F:	INFORMED CONSENT FORM (SCHOOL OF MEDICINE DOCUMENTS)	380
APPENDIX G:	INFORMED CONSENT FORM (SCHOOL OF HEALTH SYSTEM AND PUBLIC HEALTH DOCUMENTS)	382
APPENDIX H:	INFORMED CONSENT FORM AND QUESTIONNAIRE (PAPER-BASED MEDICAL STUDENT SURVEY)	384
APPENDIX I:	INFORMED CONSENT FORM AND QUESTIONNAIRE (ELECTIVE NEEDS ASSESSMENT)	390
APPENDIX J:	ETHICS APPROVAL LETTER (73/2011)	395
APPENDIX K:	PARTNER QUESTIONNAIRE	397
APPENDIX L:	BLOCK CHAIR INTERVIEW GUIDELINE	398
APPENDIX M:	SHSPH NEWSLETTERS	400
APPENDIX N:	WORKSHOP 1 QUESTION GUIDELINE	401
APPENDIX O:	WORKSHOP 2 QUESTION GUIDELINE	403
APPENDIX P:	BIOGRAPHICAL DATA COLLECTION SHEET	406
APPENDIX Q:	AMERICAN ASSOCIATION OF MEDICAL COLLEGES PERMISSION	408
APPENDIX R:	INFORMED CONSENT FORM (VIDEO-TAPING OF ORAL DEFENCE)	409
APPENDIX S:	POST PLACEMENT QUESTIONNAIRE	411

1 CHAPTER 1: THE LIE OF THE LAND

1.1 Introduction

There is research to create knowledge of the world, research to create knowledge of self, and research to create knowledge of self in the world living a fulfilled life with moral purpose (Huxtable, 2009:3).

The facilitation of learning of a subject that is not directly connected to the interests of the students in a curriculum that has a monolithic tradition is fraught with challenges. Such is the case of public health within the medical curriculum. Public health is a population-based discipline and as such is an atypical inclusion in medicine, which is an individual-based discipline.

However, within these challenges, there lies the untapped potential for innovative educational strategies and development of educational theory based on practice and experience. This thesis outlines my living theory of practice as proposed by Whitehead and McNiff (2006:32) based on an exploration and explanation of my practice, with a view to achieving a more ideal state of practice. A living theory is one that holds practice as a form of real-life theorising and is a theory that can incorporate the contradictory nature of life, in this case academic life, without the impulse to nullify those contradictions.

This research explores the facilitation of learning about public health in the undergraduate medical curriculum at the University of Pretoria.

1.2 Background

Medical education has been shaped by a number of forces over the last century, with three discernable reform periods. The first reform period was as a result of the work of Flexner, who wrote the 1910 report that provided the trajectory of moving medical curricula to a standardised scientific-basis within universities (Maeshiro, Johnson, Koo, Parboosingh, Carney, Gesundheit, Ho, Butler-Jones, Donovan, Finkelstein, Bennett, Shire, McCurdy, Novick, Velarde, Dent, Banchoff & Cohen, 2010:211). The second

reform period was that of problem-based learning that rested on the knowledge of the health needs of society. This second reform period is also characterised by both the need to ensure those competencies via targeted assessment strategies and the use of learning settings other than the university (Hodges, 2010:S37). In essence this second period focused on ensuring the independence of doctors to function in multiple settings. The third and current reform period is best summed up as a move towards an interdependent state within the health sector (Frenk, Chen, Bhutta, Cohen, Crisp, Evans, Fineberg, Garcia, Ke, Kelly, Kistnasamy, Meleis, Naylor, Pablos-Mendez, Reddy, Scrimshaw, Sepulveda, Serwadda & Zurayk, 2010:1924). This period expands on the professional competencies required to extend beyond the boundaries of medical knowledge. This expanded boundary encompasses transformative learning that has its objective leadership to bring about change in the health system (Frenk *et al.*, 2010:1951).

In a course parallel to the development in medical education, public health and public health education have also been set upon their course by a landmark report – the Welch-Rose report of 1915 (Fee & Bu, 2007:977). A key point in the report is the independence of public health from medical schools. This design was further complicated by a difference of opinion that led to a division in the purpose of public health education: a scientific research approach versus public health practice. Therefore, despite the common root of medicine and public health, there is little common understanding of what public health is and how it contributes to medicine. This conceptual distance could be due to the development route taken by public health education with a postgraduate rather than undergraduate focus. Despite the lack of clarity of what exactly should be included in the medical curriculum¹, there is a persistent theme in the literature that public health, although peripheral, is important to medicine (Woodward, 1994:391; Allan, Barwick, Cashman, Cawley, Day, Douglass,

¹ A curriculum is a statement of the intended aims and learning objectives, content, experiences, outcomes and processes of a programme, including a description of the structure and expected methods of learning, teaching, feedback and supervision. The curriculum states what knowledge, skills, attitudes and behaviours the students have to achieve (Postgraduate Medical and Education Board, 2008:3).

Evans, Garr, Maeshiro, McCarthy, Meyer, Riegelman, Seifer, Stanley, Swenson, Teitelbaum, Timothe, Werner & Wood, 2004: 471; Gillam & Bagade, 2006:430; Berwick & Finkelstein, 2010:S56; Maeshiro *et. al.*, 2010:213).

Despite the stated importance of including public health, there is resistance among educators to include public health in the curricula of health professions (Roe, 2009:19-20) and medical students in particular remain resistant and uninterested as public health holds no obvious use to them in their studies (Riegelman, 1991:254). It is ironic, therefore, that there is a movement in the United States of America to include public health in all undergraduate curricula from liberal arts to science as part of developing citizenship (Roe, 2009:19).

In South Africa the inclusion of public health in the medical curriculum is not resisted but the facilitation of learning about public health has been overshadowed by the more encompassing curricula changes that have orientated the medical curriculum towards primary health care to better meet the needs of South Africans (Seggie, 2010:8). Although much attention has been spent on this reorientation, little is known of the theories, practices or policies of the inclusion of public health in the medical curriculum in South African universities.

Each medical school has autonomy regarding the inclusion of public health within the broad parameters prescribed by the Health Professions Council of South Africa (HPCSA). At the University of Pretoria public health is theoretically included over the six years of the medical curriculum as a theme and the School of Health Systems and Public Health (SHSPH) – my school – is responsible for the coordination.

The subject of public health at the University of Pretoria is somewhat misleading in its description as ‘an epidemiological approach to health’ is only one aspect of public health and it also under-describes the actual curriculum of this golden thread. The golden threads are important humanitarian knowledge, attitudes and skills that run through the medical curriculum at the University of Pretoria. The nine golden threads have a defined curriculum but the facilitation of learning does not take place at a single point in time but is spread out over the duration of the curriculum with varying amount of input in the blocks and/or special activities/modules. As a group of nine threads, these

threads prepare students for the non-physical, humanitarian aspects of the practice of medicine and provide a balance to the physical aspects of medicine (Kruger, 2008:2).

As public health is first and foremost included in postgraduate learning programmes in South Africa the facilitation of learning about public health among the medical students might be a peripheral activity, but it remains a compulsory activity for the staff of the SHSPH. Peripheral or not, this particular educational practice has become increasingly unsatisfactory on a personal educational level over time. The dissatisfaction stems from institutional, operational and professional barriers that prevent meaningful debate on the purpose and intent of, and optimal strategies for, the facilitation of learning about public health in the medical curriculum. In the context of this study professional refers to all the activities, responsibilities and roles as a member of the academic staff. This critical consciousness has surfaced as a result of my own professional development as a lecturer, my personal reflections and experiences, discussions with colleagues, and catalytic comments from a critical medical student.

The impetus for this research is that I felt denied in practice of the opportunity to engage in – what I consider – useful debates on facilitating learning about public health among our medical students at our university.

As a person who believes that knowledge is co-created with others, I wished to transform my own personal knowledge and educational practice of facilitating learning about public health together with others. This social co-creation of knowledge, or constructivism, is a process of constructing knowledge which is “meaning that people make out of their experience, and people construct meaning as they interact with the world” (Collins & O'Brien, 2011:98).

Through the research with colleagues and students our explanations or theories of practice have been developed on how we support medical students to see over the conceptual horizon of public health. By theorising our practice through action research we can create a living educational theory of practice (Whitehead & McNiff, 2006:32).

A debate is currently ongoing regarding the very nature of medical education research and whether medical education research should be constructed as a medical or social

science. In the literature there are those who hold the view that medical education research should result in improved patient care, and is therefore a medical science (Bligh & Brice, 2008:653). Other researchers, such as Monrouxe and Rees (2009:196), argue that research that leads to the creation of new knowledge for other academics as well as contributions to the methodological and theoretical developments in the social sciences is legitimate (Monrouxe & Rees, 2009:197).

The use of practitioner research is therefore aligned with the call for research in medical education in general, particularly research that can narrow the gap between opinion-based and evidence-based learning (Karle, 2004:206).

Within medical education there is a particular shortage of research on public health education. In a commissioned article for the *Lancet* journal the authors reviewed over 11 000 articles on medical, nursing and public health education and found that only two per cent dealt with public health education (Frenk *et al.*, 2010:1942). This dearth of literature is more pronounced in South Africa where the stark reality of uncertainty of what to include in our undergraduate curricula hampers a research agenda.

But what we do know from experience is that public health education is entangled with medical education and forces that exert change in medical education reverberate in public health education. And where everything is connected, simplicity is not possible (Regehr, 2010:36). As such, proofs of simple generalisable 'solutions' – regarding curricula development and facilitation of learning strategies in public health – in the form of propositional theories are inappropriate (Regehr, 2010:38). Regehr (2010:38) suggests that the generation of rich understandings of the complex environments in which we find ourselves must be the grounding of our questions.

1.3 Research questions

In developing my living theory of facilitation of learning public health among medical students I have explored four main questions:

- How do we conceptualise public health as a subject in the undergraduate medical curriculum?²
- What are the intended educational achievements of public health in our undergraduate medical curriculum?
- How can I influence my colleagues' facilitation of learning practice to advance the value of public health in the medical curriculum?
- How do I model characteristics of transformational educational leadership in public health with both my students and colleagues?

1.3.1 Research aim

In the development of my research question(s) I have been guided by a personal and professional concern that is a permanent feature of part of my professional educational practice and that at the same time “strongly connects with what really matters [to me]”, as Whitehead (2008:2) suggests as a guide to researching one’s practice.

The aim of the research has been to transform my educational practice and to make explicit my growing understanding of my own and others’ sense of agency in transforming my/our public health educational practice. This aim is in line with my social constructivism stance to practitioner research. The definitive aim is for our efforts to contribute to the creation of the big picture of public health in the undergraduate medical curriculum at the University of Pretoria.

Implicit in this aim is the desire to more fully live my professional values in my educational practice, transform my practice, generate a living theory of my practice, and by so doing allow for the possibility to influence others similarly.

² A curriculum is a statement of the intended aims and learning objectives, content, experiences, outcomes and processes of a programme, including a description of the structure and expected methods of learning, teaching, feedback and supervision. The curriculum states what knowledge, skills, attitudes and behaviours the students have to achieve (Postgraduate Medical and Education Board, 2008:3).

These research questions have been refined in the course of this research as my knowledge of myself as educational practitioner has developed and the nature and significance of the questions have evolved.

1.3.2 Research objectives

The objective of this practitioner research is to make public my personal experience of educational practice. This type of research is aligned with a call made by Catherine Snow (2001) during her American Educational Research Association's (AERA) presidential address where she argued for the elevation of practitioner-generated knowledge as a means of constructing educational theory via:

Procedures for accumulating such knowledge and making it public, for connecting it to bodies of knowledge established through other methods, and for vetting it for correctness and consistency (Snow, 2001:9).

As these research objectives are those of understanding and practice, I have developed standards of judgement that have contributed to the progression of my personal understanding and practice of public health education. Such personal development has enabled me to be publicly accountable and has provided me with solid grounds “for rejecting personal anecdotes as a basis for either policy or practice” (Snow, 2001:9).

1.3.3 Parameters of the study

This research has as its parameters the facilitation of learning about public health in the undergraduate medical curriculum at the University of Pretoria. Despite the delineation, this practitioner research has the possibility to extend in significance beyond one institution or only one discipline.

1.3.4 Academic implications of this study

Regardless of the parameters of the study, this research holds potential to inform theory, policy and practice for a myriad other disciplines that find themselves on the fringe of the curricula of other disciplines and that are based on outdated ideas of what

higher education entails. This potential for broader theoretical and practical significance is a result of the plural structure as described by Winter and Burroughs (1989:62-5), which defies the parochial focus – a favourite argument against action research. Some of these benefits are:

- *Benefit to self*: personal growth, the deepening of understanding of my practice and the development of accountable practice have been my primary motivations.
- *Benefit to others (colleagues)*: the benefit in the learning with others has resulted in shared knowledge claims of public health in the undergraduate medical curriculum – especially in terms of coherence, clarity, the illusive ‘big picture’ and accountable facilitation of learning strategies.
- *Benefit to others (students)*: a clear, simple and coherent message of public health for the most powerful professional group in health care can have wide-reaching future effects as these future doctors will one day be leaders, train future doctors, review proposals for funding, head philanthropic organisations, serve as medical diplomats, serve on numerous boards including editorial boards, and be programme directors. Our current students will not only act as role models in these future roles but also be agents/activists for the marginalised, vulnerable and underserved members of society.
- *Benefit to others (broader academic formations beyond own colleagues and students)*: my interest has already contributed to the debate of public health in the undergraduate medical curriculum with other South African universities and has contributed to the foundations for communal action, communal accountable practice and engagement with the local community.

But it is not the immediate benefits that are of interest, rather the acknowledgment that the only beneficiaries that matter are the future communities of patients and clients that our students will serve one day. And the fact that this is beyond measurement is exactly what matters to me.

1.4 Chapter outline

Chapter 1: Lie of the land

In this introductory chapter I have provided the rationale, justification and purpose of the study. This chapter also introduced the issues that provided the impetus for the research as well as the desire to transform my educational practice. The position and scope of the study within the body of literature has been established and an outline of the structure of the document is provided next.

Chapter 2: My professional landscape

The convention for academic writing usually includes a theoretical framework followed by a conceptual framework. However this convention feels unnatural for practitioner research as concerns or aspirations about practice emerge from a particular professional context at a particular time. Once the professional context has been given space to emerge in the conceptual framework, the theoretical framework then gives the research its direction.

My professional landscape merges several streams of theory into the complex conceptual framework of a public health educator at the University of Pretoria. The framework outlines three distinctive landscapes: the external landscape of the historical and educational context; the internal landscape of public health in the medical curriculum at our institution; and finally the intra-landscape – or experiences – of both the medical students and myself. In this chapter, priority is given to the historical and educational context as this has determined the terrain of this study.

The conceptual framework rests on a bedrock of values: the four cardinal public health values of relevance, quality, cost-effectiveness and equity (Boelen, 1993:2-3). Similarly, my own professional and personal values underpin my educational practice and are outlined as the prime meridian. The denial by my peers of my values of care and agency in my educational practice is both the impetus for this research and informs my choice of theoretical framework.

Chapter 3: My personal landscape

This chapter develops the personal landscape as introduced in Chapter 2 and skims over the genus groups of propositional and dialectic theories as an environment for my choice of living theory as my theoretical framework. The choice of practitioner research is explained by my professional concerns that are outlined in the description of my context. The chapter concludes with this description of my personal landscape by emphasising the extratextual, intratextual, intertextual and circumtextual frames (Grbich, 2007:8) that I have used to bring my knowledge and practice into focus through my research.

Chapter 4: Measuring and divining

This chapter recalls the intention to transform my own educational practice and choice of practitioner research that allows me to explore the contradictions and denial of my personal, ontological and epistemological values.

Action research is introduced briefly as a precursor to the model of action research that was chosen. I justify my choice of action research and defend my choice by referring to other practitioner research that has used action research.

The measuring and divining activities in this research are dealt with in detail. The chapter describes the action research model of choice and my adaptation of the model to better explain my understanding of the interplay between action research and reflection. The description of the ethical considerations that guided the relationships with the research participants is the ingress to the body of the chapter. The bulk of the chapter is devoted to a full description of the research setting, research participants, data gathering, data management and data analysis from my professional activities, my meta-learning process, and my validation processes. I describe the steps taken to ensure the quality of the qualitative and quantitative components of the research methods. These quality measures are augmented by a description of the measures taken to ensure the quality of the living theory from a more holistic or meta-perspective. My use of critical readers and a validation group are described.

The chapter ends with a description of the delineations and limitations of this research so that this chapter prepares the ground for the research findings.

Chapter 5: Origins and understanding

This chapter is the first of the three findings chapters that unite the various findings, insights and theories that have surfaced in the iterative and cumulative nature of my action research. The chapter introduces the role of the researcher as a *bricoleur* who assembles multiple images into a reality and the use of a connecting icon of a compass is explained.

The chapter revisits the origin of public health from the viewpoint of the international experts and ever-present, but seldom recognised, split between public health and medicine. The multiple concurrent understanding of what medical students think public health is forms the first layer in the meaning-making process in this chapter. Second, third and fourth layers of understanding the nature of public health are laid down, from the block chairs (including the vice-dean of medicine), the SHSPH staff, and the global community of public health practitioners. Each layer adds to the understanding of public health so that public health seems to be constructed by diverse and seemingly conflicting perspectives while still being identifiable as public health.

Chapter 5 started with a reminder of the underlying tension that the rift between public health and medicine has caused, and ends with the introduction of a new tension – the multiple concurrent understanding of public health.

Chapter 6: Intentions and aspirations

This chapter introduces the draft proposed public health competency framework for undergraduate medical students. The findings from the SHSPH workshops that predated this framework are combined and contrasted with the proposed competency framework.

The intentions and aspirations contained in the competency framework and the SHSPH workshops are followed by an analysis of the block books (study guides) that describe the current inclusion of public health in the medical curriculum.

Any intention or aspiration of including public health in the undergraduate medical curriculum is vulnerable to a variety of constraints. The block chairs and the SHSPH workshop participants describe the constraints that they have experienced in their educational practice. These constraints include those typically described in the literature – time, interest, availability and assessment – with the use of a golden thread approach forming an additional constraint.

Student opinion on the inclusion of public health in the medical curriculum is explored via the routine end-of-block evaluation and via a survey. These opinions are compared with those described in the literature and together with the analysis of the block books are used to flag areas of weakness in the public health curriculum.

The current reality of our educational practice is delineated by several boundaries. The first one described in this chapter is the proposed competency framework – what graduates should be able to know and do with regard to public health. The second boundary is a combination of the constraints that are experienced by academic staff to include public health in the medical curriculum. The third boundary is that of overcoming the weaknesses in the curriculum that were identified by the students, the academic staff and the review of the block books.

The strategies that will be needed to overcome the boundaries described in this chapter form the focus of the last findings chapter.

Chapter 7: Strategies and exploration

This final findings chapter returns to the beginning of public health and the rift between public health and medicine by exploring the strategy of social accountability to repair that rift.

The body of the chapter is devoted to sharing the wide variety of educational strategies that the block chairs and the academic staff of the SHSPH use (or suggest using) to include public health in the medical curriculum.

The chapter describes a paradigm shift in the thinking of the SHSPH workshop participants regarding the facilitation of learning about public health in the medical curriculum. The new strategy of engagement that can overcome the dual barriers of time and space in the curriculum is described. This strategy of engagement utilises two uncontested spaces in the medical curriculum: social media and the elective space. The first is explored as a strategy to create a community of public health while the second – the elective space – is the basis for my own innovative educational practice in designing a public health elective.

The chapter lays out the design and the implementation of the public health elective for third-year medical students. The chapter concludes with my new understanding of public health and the interest of medical students.

Chapter 8: Theorising practice

This chapter introduces my living theory of my educational practice and the context of this practice. The research questions recall the purpose of the research while a brief summary of the three results chapters provide the ingress to the explanation of my living theory. The genesis of my living theory of a world with meaning stems from disrupting the *status quo* in our undergraduate medical curriculum. This act of fracturing our current inertia revealed both a web of tensions and points of connection in our curricular intentions and educational practices. New conceptual horizons of understanding are identified, overcome or disputed. This living theory of a world with meaning rests on my values of agency and care that could find expression in the research. By exercising these values I claim to have transformed my practice and the understanding of that practice.

The potential significance of this research is briefly described prior to an account of the limitations of the research and the steps taken to assure the validity of the research.

This chapter concludes with some branching avenues of research questions that this study has generated prior to some closing remarks.

Chapter 9: The compass rose

This chapter contains a compass rose of the meta-reflections of my professional development during this research. The Herrmann Brain Dominance Instrument (HBDI®) (Herrmann International Africa, 2013) provides a framework for the four directions of my professional development journey: my intellectual self, my safekeeping self, my emotive self and my experimental self. By presenting these meta-reflections as part of my claims to knowledge I share my professional development journey.

1.5 Lists of abbreviations and acronyms and definition of key terms

1.5.1 List of abbreviations and acronyms

AAHC	Association of Academic Health Centers
AAMC	Association of American Medical Colleges
AFMC	Association of Faculties of Medicine of Canada
AMA	American Medical Association
ANOVA	Analysis of Variance Analysis
APHA	American Public Health Association
APTR	Association for Prevention Teaching and Research
ASPH	Association of Schools of Public Health
ATPM	Association of Teachers of Preventative Medicine
CAHP	Cooperative Actions for Health Program
CBE	Community Based Education
CDC	Centers for Disease Control and Prevention
CH	Community Health
FAIMER	Foundation for Advancement of International Medical Education and Research
FM	Family Medicine
GCSA	Global Consensus for Social Accountability

GMC	General Medical Council
HBDI	Herrmann Brain Dominance Instrument
HPCSA	Health Professions Council of South Africa
IOM	Institutes of Medicine
JN	Jotted notes
LCME	Liaison Committee for Medical Education
MEOP	Medical Education Orientation Programme
MMed	Master in Medicine
MN	Mental Notes
MPH	Master of Public Health
MPHI	Medicine and Public Health Initiative
OER	Open Education Resources
PGCHE	Postgraduate Certificate in Higher Education
PHASA	Public Health Association of South Africa
PHC	Primary Health Care
PHEN	Public Health Educators Network
PERC	Prevention Education Resource Center
RMPHEC	Regional Medicine Public Health Education Centers
SA	Special Activity
SAMDC	South African Medical and Dental Council
SAFRI	Southern Africa FAIMER Regional Institute
SAQA	South African Qualifications Authority
SHSPH	School of Health Systems and Public Health
SMO	Special Study Modules
USA	United States of America
UP	University of Pretoria
US	University of Stellenbosch
WHO	World Health Organization

1.5.2 List of key terms

Academic Health Centre

A medical school, one or more other health professions schools, and affiliated health systems/hospitals.

Golden thread

The golden threads are important humanitarian knowledge, attitudes and skills that run through the medical curriculum at the University of Pretoria.

Health post

A health post is a community based service unit that serves the population in a defined area.

2 CHAPTER 2: MY PROFESSIONAL LANDSCAPE

2.1 Introduction

My approach in describing the topography of my professional landscape is to describe a conceptual framework that connects various streams of theory and practice that have converged at this point in time, in this particular place for this particular purpose – in essence, a conceptual delta. Each one of the divergent streams that has fed into this document is essential for the understanding of the sources of my current reality. This structuring of the conceptual framework is consistent with the constructivist nature of action research that allows for constructing new theory from experience – as is to be found in the notion of living theory (Whitehead & McNiff, 2006:39) – my personal landscape that is outlined as a theoretical framework in Chapter 3. This conceptual framework has evolved over the period of this research and ultimately still resists closure in accordance with the postmodern nature of action research.

These streams of theory and practice are described as a series of interrelated concepts that have pooled as a conceptual framework for this research and include both an external and internal landscape. The external landscape is a combination of:

- Public health as a discipline;
- Public health education;
- Undergraduate medical education;
- Public health in the undergraduate medical curriculum;
- Public health education in South Africa; and
- Public health in the South African medical curriculum.

And the internal landscape describes public health in the University of Pretoria's medical curriculum.

Against these external and internal landscapes I have juxtaposed my intra-landscape and the intra-landscape of medical students and the key issues of role modelling, burnout, and agency that face millennium-generation students. Finally, the conceptual framework has a strong underpinning of values. The four cardinal values in public health: relevance,

quality, cost effectiveness and equity (Boelen, 1993:2-3) underpin public health practice and education as well as guide medical schools in meeting their social accountability contract. Similarly, my own professional and personal values of care and agency underpin my educational practice.

A visual representation of my conceptual framework has been developed in order to guide the reader through the text. The framework below does not attempt to show linkages between its components, but simply the content of interest as part of the framing for my research questions (Figure 2.1).

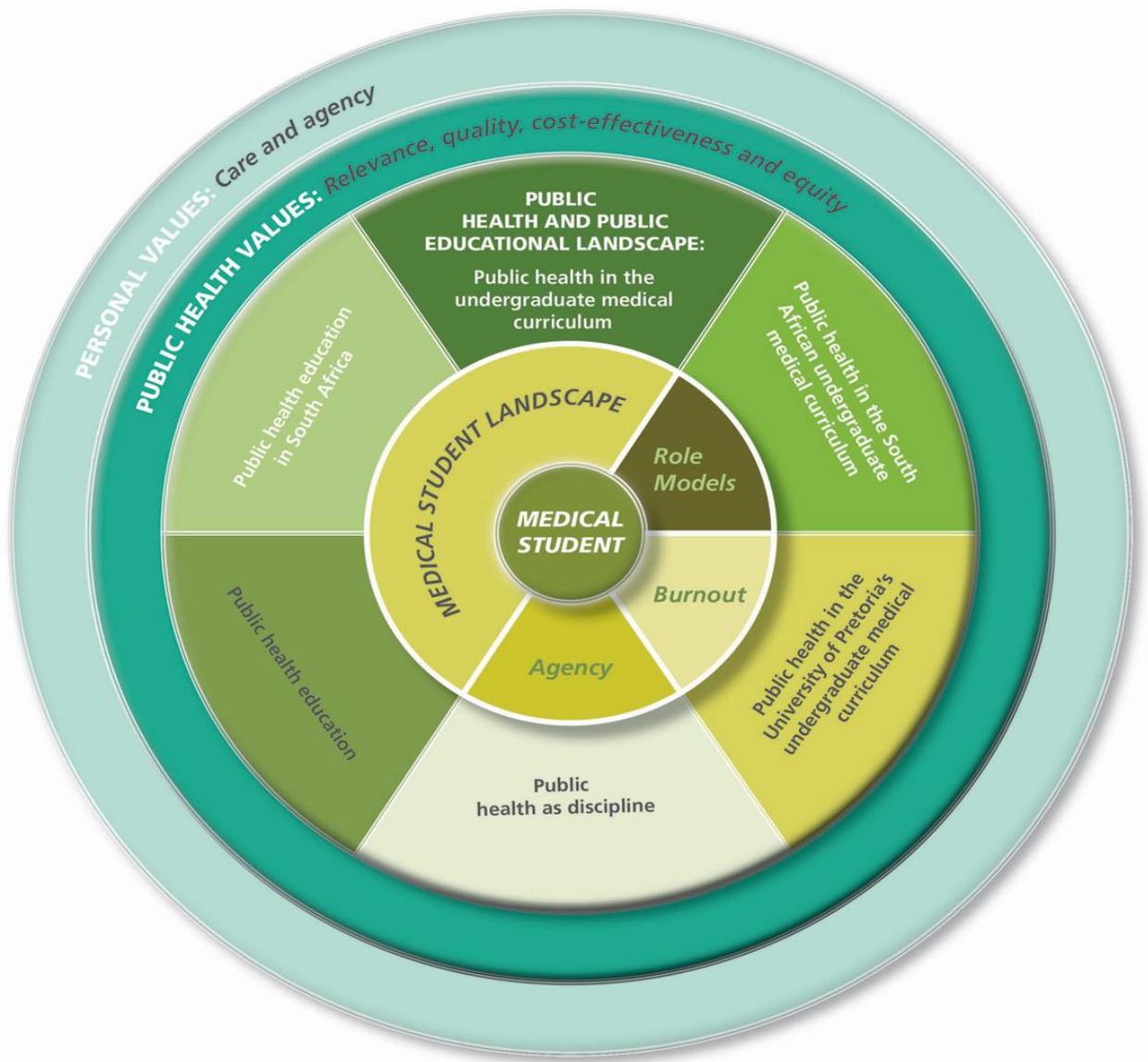


Figure 2-1: My conceptual framework for this research

Various databases were searched with the assistance of staff from the University of Pretoria's Academic Information Service in the development of this conceptual framework. A snowballing technique was used to explore the literature by first sourcing citations from the key articles, and then in turn sourcing the citations in the second-line articles. This technique was used until saturation was reached and no new articles on the primary topics of interest were found. Some of the databases used were: Academic Search Premier, E-Journals, ERIC, SpringerLink, World Health Organization, Google Scholar and Medline. The following box lists some of the major scholarly contributors in this conceptual framework:

Box 2-1: Major scholarly contributors in this conceptual framework

Berwick and Finkelstein, 2010 (medical education)
Boelen, 1993 (public health values)
Boelen, 2009 (social accountability for medical schools)
Cruess, Cruess and Steinert, 2008 (role modelling)
Dyrbye, Thomas, Harper, Massie, Power, Eacker, Szydlo, Novotny, Sloan and Shanafelt, 2009 (burnout)
Fee and Bu , 2007 (public health education)
Frenk, Chen, Bhutta, Cohen, Crisp, Evans, Fineberg, Garcia, Ke, Kelly, Kistnasamy, Meleis, Naylor, Pablos-Mendez, Reddy, Scrimshaw, Sepulveda, Serwadda and Zurayk, 2010 (medical education)
Leont'ev, 1978 (agency)
Maeshiro, Johnson, Koo, Parboosingh, Carney, Gesundheit, Ho, Butler-Jones, Donovan, Finkelstein, Bennett, Shire, McCurdy, Novick, Velarde, Dent, Banchoff and Cohen, 2010 (medical education)
Stone , 2000 (public health in the medical curriculum)
Vygotsky, 1978 (agency)
Woodward, 1994 (public health in the medical curriculum)
Woollard, 2006 (social accountability for medical schools)

2.2 Public health landscape

Public health is a field of study that has its own body of knowledge, theories, principles, values, research and practitioners. Public health is either offered as postgraduate specialised programmes³ or, increasingly, included as a subject⁴ in undergraduate curricula. A brief summary is required to foster understanding, as the field is varied in terms of a postgraduate programme focus versus an undergraduate subject focus.

2.2.1 Public health as a field of study

Public health as a field of study can be described as the “the science and art of preventing disease, prolonging life and promoting health through the organized efforts and informed choices of society, organizations, public and private communities” (Winslow, as cited in Petrakova & Sadana, 2007:963). The primary focus of public health is the overall health of a community or population. In public health ‘population’ is a term used to refer to groups of people and includes both small groups (such as a population of a rural community for example) and large groups (such as the global HIV+ population). The term ‘public health’ is often confused with medical care for the underserved (Maeshiro *et al.*, 2010:211-2).

The most important fields of specialties (also referred to as ‘disciplines’ by some authors) in public health are epidemiology; biostatistics; health policy and management; social or behavioural sciences; and environmental health sciences (Calhoun, Ramiah, McGean Weist & Shortell, 2008:1601). Variations between curricula are common, with either some recategorisation of, or addition to, these specialties.

Public health interventions prevent rather than treat diseases through, for example, vaccination programmes and distribution of condoms. This prevention is primarily through disease surveillance and health-promotion interventions that focus on developing healthy

³ Programmes in this document are used to describe a university degree or diploma (e.g. Master of Public Health) that usually spans several years and is composed of multiple components.

⁴ A subject in this document refers to a single component within the field of public health e.g. epidemiology. Subjects might be presented in modular format.

behaviours. Treatment of disease is still part of public health when the treatment of cases might be vital to preventing its spread.

The ultimate goal of public health is to improve health, which has been defined by the World Health Organization (WHO) as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (De Haan, 2005:3).

2.2.2 Public health education

The origins of public health education as a relatively new field of study have created some of the diversity in curricula we see today. From the very start of public health a fundamental difference in educational philosophy divided the field.

In 1913 the Rockefeller Foundation sponsored a conference that focused on the need for public health education as a new profession in the United States of America (USA), one that would have its own identity and own educational institutions (Fee & Bu, 2007:977). The model of an 'institute of hygiene' that would produce a trained cadre of public health workers was encapsulated in the Welch-Rose report in 1915. It was envisaged that such an institution would be independent of both medical schools and state public health services. The American model would be different from that used in the United Kingdom (UK) and Europe, which focused on health administration. The aims of the American model were both to advance the knowledge of hygiene (e.g. epidemiology and bacteriology) but – even more critically – to train public health leaders (Fee & Bu, 2007:977).

In 2010 it was estimated that there were 467 schools or departments of public health worldwide (Frenk *et al.*, 2010:1923). In Africa it is estimated that there are 51 schools (Frenk *et.al.*, 2010:1934), with nine of these currently in South Africa. These African schools are characterised by a small academic staff component – 80% have 20 or fewer academic staff members (Ijsselmuiden, Nchinda, Duale, Tumwesigye & Serwadda, 2007:917).

An important distinction in the American model is the compromise between Welch (who favoured the scientific research approach) and Rose (who favoured public health practice).

This dual focus is still a source of tension today. This fundamental divide between science and practice is the root of the variations in the modern models of schools of public health and account for the focus of science over practice or *vice versa* that can be seen.

The underlying tension between science and practice is reflected in the South African models, with wide varieties in the Master of Public Health (MPH) programmes both in terms of entry requirements, content, learning outcomes, research requirements and credits.

Irrespective of the choice of science versus practice, public health is not a stand-alone field but has its roots in medicine. Medicine itself has experienced some seismic shifts over the past century and a discussion of public health education without a discussion of medical education would be akin to describing a landslide without talking about the causal earthquake.

2.3 Undergraduate medical education

The Welch-Rose report of 1915 that outlined public health education as a separate profession is grounded in other reforms at the time. The first generation of reforms in medical education is dominated by the work done by Abraham Flexner that culminated in his 1910 report.

2.3.1 The first generation of reform: the Flexner Report

In the late 19th and early 20th century there were a number of key forces that reformed medical education in the USA and Canada, yet it was the Flexner report that was pivotal. Flexner was commissioned by the Carnegie Foundation for the Advancement of Teaching to conduct a national review of medical education. As an educator and non-medical practitioner he was able to say what others could not and could more easily bring the deficiencies in medical education to the attention of the general public (Barzansky, 2010:S24). The root of the deficiencies of the time lay in the inability of the medical colleges to reach agreement. For example, in 1910 three-quarters (74%) of the 133 medical schools in the USA required a four-year high school education, although in practice the schools were accepting students who fell short of even this low standard (Barzansky, 2010:S20).

In particular it was Flexner's passion as an educator and his ability to sympathise with medical students that led to his public report of the poor conditions that paved the way for the raising of the standards of medical education:

Flexner's inquiry was comprehensive and his recommendations were bold, implying the need to close many small medical schools, to change entrance requirements, faculty composition, laboratory infrastructure and relationships with teaching hospitals (Berwick & Finkelstein, 2010:S57).

Flexner's advocacy also extended to standardisation of the curriculum, meaningful assessment, governance structure and, importantly, the professionalisation of faculty members (Nora, 2010:S45). The result was a transformation of medical education "into an enterprise that espoused practice based on modern science, not on mere habit or lore" (Berwick & Finkelstein, 2010:S57).

Flexner's insights about what society needed from medical care and the role of the medical practitioner as social instrument (Berwick & Finkelstein, 2010:S56) laid the foundations for the emergence of public health education.

The overwhelming importance of preventative medicine, sanitation, and public health indicates that in modern life the medical profession is an organ differentiated by society for its own highest purposes, not a business to be exploited by individuals according to their own fancy. There would be no vigorous campaigns led by enlightened practitioners against tuberculosis, malaria, and diphtheria, if the commercial point of view were tolerable in practice. And if not in practice, then not in education...The public interest is then paramount, and when public interest, professional ideals, and sound educational procedure concur in the recommendation of the same policy, the time is surely ripe for decisive action (Flexner as cited in Maeshiro et al., 2010:217).

In keeping with the thinking at the time, Flexner uses 'preventative medicine and hygiene' to describe what is now termed 'public health'. He repeatedly identified three public health-related principles in his report. These are summarised as (Maeshiro et al., 2010:211):

- The education, training, quality, and quantity of medical practitioners should meet the health needs of the public;

- Medical practitioners have societal obligations to prevent disease and promote health, and medical training should include the breadth of knowledge necessary to meet these obligations; and
- Collaborations between the academic medicine and public health communities result in benefits to both parties.

Only some of Flexner's recommendations – mainly those that aligned with the dominant discourses of the time – were adopted and within 15 years Flexner was unhappy with the dominance of the positivist and scientific aspects of medicine, leaving doctors “sadly deficient in cultural and philosophical background” (Hodges, 2010:S34). Already in 1910, Flexner's vision of the evolving role of doctors foreshadowed the focus of the third period of reform in medical education:

For scientific progress has greatly modified his ethical responsibility. His relation was formerly to his patient – at most to his patient's family; and it was almost altogether remedial... But the physician's function is fast becoming social and preventative, rather than individual and curative. Upon him society relies to ascertain...the conditions that prevent disease and make positively for physical and moral well-being (Flexner as cited in Maeshiro et al., 2010: 211).

While the third reform was still on a distant horizon at that time the debate around competency emerged and formed the focus of the second period.

2.3.2 The second generation of reform: the focus on competencies

In the work of Frenk *et al.* (2010) the second generation of reform is described as a period that focused on problem-based education. I prefer the construct of competency development as more characteristic of the period. This view is supported by the development of a number of competency frameworks developed at the time. In addition the use of a competency construct does not preclude problem-based learning as one of the strategies to promote competence. This focus on the development of competence is inherently a focus on clinical practice – a weakness that the third period of reform attempts to address.

In medical education there are two competing models of competence development: time-based versus outcomes-based.

- *Time-based model of competence development*

Medical education has an unspoken abiding belief that a fixed interval of time is sufficient to develop competence. The author uses the metaphor of tea-steeping to illustrate. “We put the student (tea) in medical school (hot water) for a fixed period of time and voilà! After a historically determined interval of time, we assume a competent practitioner, like a good cup of tea, will result” (Hodges, 2010:S37). Hodges (2010) argues that this model has proven itself to be very durable over the past 100 years with few (and minor) modifications. These modifications have been early clinical exposure and/or problem-based learning. “The primary determination of graduation (almost 100% of the time) remains the length of time spent in the training programme” (Hodges, 2010:S37).

Changes in the time-based model have focused on two components: admission criteria and curriculum content. What is of importance is to pick students with the ‘right’ qualities (right type of tea) and the curriculum content (the temperature of the water). Here the approach is that as medical students are bright and motivated all that is required is to focus on the content and process of what happens within the walls of the medical school.

At least conceptually, many of the qualities thought to be underdeveloped in graduates – tolerance of ambiguity, cognitive flexibility, the integration of knowledge and context, curiosity and innovation – fit with a tea-steeping model that gives primacy to time in the development of personal qualities and habits of mind (Hodges, 2010:S38).

- *An outcomes-based model of competence development*

Early in the 20th century the dominant discourse was one of *competence as knowledge* and graduation demonstrated the suitability to practice medicine (Hodges, 2010:S39). Later shifts gradually added communication, collaboration, and a greater focus on skills. This shift found expression in Miller’s Pyramid, in which *performance* was ranked higher than pure knowledge (Hodges, 2010:S39).

New frameworks for competence (Table 2-1) embedded knowledge and skills into *roles* and thereby strengthened the behaviourist approach (Hodges, 2010: S39). These roles are captured in frameworks that contributed to a “shift in competence from *know* to *does* and collectively fuelled a drive toward outcomes” (Hodges, 2010:S39).

Table 2-1: Role Frameworks: Canada (Hodges, 2010:S39) and the United Kingdom (*Tomorrow’s Doctors*, 2009:4)

Role Framework	Royal College of Physicians and Surgeons of Canada (RCPSC)	General Medical Council (GMC)
Name	CanMEDS	Tomorrow’s Doctors
Country	Canada	United Kingdom
Date approved	1996	1993
Current version	2005	2009
Roles	Medical expert Communicator Collaborator Manager Scholar Health advocate Professional	Practitioner Scholar and scientist Professional

The outcomes-based model uses language and concepts from manufacturing (Hodges, 2010:S40). Hodges (2010) coins the phrase ‘i-Docs’ as an illustration of this adopted manufacturing model:

Though I draw the analogy somewhat facetiously, the notion that medical students, like factories, can produce highly desirable products adapted to user needs and desires and can continuously improve successive iterations through quality assurance and feedback mechanisms is an attractive analogy for some. It is so attractive, in fact, that medical education literature after the 1990s is full of words and concepts taken from business and manufacturing (Hodges, 2010:S41).

The manufacturing model is, however, inadequate to respond to the parallel call for student-centredness. An underlying assumption in the production discourse is that all the units produced will be identical. However, students as the raw material resist

standardisation and variability in personality and learning means that attainment of outcomes will be equally variable (Hodges, 2010:S41).

Hodges (2010:S41) concludes that although the old time-based tea-steeping model is problematic, so is the production-orientated manufacturing of i-Docs. A compromise is proposed in outcomes-based education that has been adapted to the needs of individuals.

- *Outcomes-based education adapted to individuals*

Hodges (2010:S41) uses an analogy of how as a child he had to achieve a swimming award: “I was required to swim – not *describe* how to swim, or *simulate* how to swim – but actually *to swim* from one end of the pool to the other and back again”. He emphasises that the kind of outcomes-based model matters as well as the beneficial effect of time. Time is required as some competencies such as judgement, personal development, reflective capacity, and the development of cognitive structures need time for development.

This inclusion of time counteracts the concerns of Whitehead whose concern is the production discourse that “removes the person from the process. By combining the production discourse with outcomes-based language, both person and time, and hence any sense of journey, vanish” (Whitehead, 2010:1675). The journey as well as the destination remains critical.

Although still both popular and prevalent, the end-of-production horizon of outcomes-based education holds no promise for greater societal change – unlike the third reform in medical education.

2.3.3 The third generation of reform: systems-based medical education

As a result of the first period of reform in medical education modern science was integrated into the curricula at university-based schools and the resultant improved knowledge of health professionals contributed to the extension of life expectancy by 30 years of additional life for Americans and Canadians (Maeshiro *et al.*, 2010:212). It is interesting to note that 25 of these additional years are attributable to public health

measures such as clean water, better nutrition, safer housing and sanitation (Maeshiro *et al.*, 2010:212).

Despite all the early reforms in medical education health care inequities persist. The challenges of environmental health risks, new infectious diseases and behavioural risks have not been met by changes in medical education. Frenk *et al.*, (2010:1923) name fragmented, outdated, and static curricula as the reason for ill-equipped graduates:

The problems are systematic: mismatch of competencies to patient and population needs; poor teamwork; persistent gender stratification of professional status; narrow technical focus without broader contextual understanding; episodic encounters rather than continuous care; predominant hospital orientation at the expense of primary care; quantitative and qualitative imbalances in the professional labour market; and weak leadership to improve health system performance (Frenk et. al., 2010:1923).

This third period of reform is a call for improvement of health systems by adapting core competencies to specific contexts while applying global knowledge. The reforms include the social movement to improve the performance of the health care system and the medical practitioner, and by logical consequence the medical students are positioned as agents for improvement within the system.

Four sets of major reports (Box 2-2) are “increasingly coalescing into a third generation of reforms that emphasise patient and population centeredness, competency-based curriculum, interprofessional and team-based education, IT-empowered learning, and policy and management leadership skills” (Frenk *et al.*, 2010:1932).

Box 2-2: Four key national reports in current medical education

- *Future of medical education in Canada* (2000), by the Association of Faculties of Medicine in Canada.
- *Tomorrow's Doctors* (2009), by the General Medical Council of the UK.
- *Educating Physicians. A call for reform of medical school and residency* (2010), by the Carnegie Foundation.
- *Revisiting medical curriculum at a time of expansion* (2008), by the Macy Foundation.

In addition, the Association of American Medical Colleges supported the journal *Academic Medicine*, which published two key supplements. The first was: *A snapshot of medical student education in the USA and Canada* (2000). The second report followed ten years later: *Medical Education in the United States and Canada, 2010* (Anderson and Kanter, 2010).

The reports expand core competencies beyond knowledge to include aspects such as public health, which promote the medical practitioner's sense of social responsibility (Frenk *et al.*, 2010:1933).

Characteristics of this third period of reform call for critical reasoning and ethical conduct so that medical practitioners are competent to:

participate in patient and population-centred health systems as members of locally responsive and globally connected teams. The ultimate purpose is to assure universal coverage of the high-quality comprehensive services that are essential to advance opportunity for health equity within and between countries (Frenk *et al.*, 2010:1924).

The authors of this Lancet-commissioned review envisage a series of institutional and instructional reforms to achieve two proposed outcomes: transformative learning and interdependence in education. The authors argue, but do not cite any evidence, that implementing these changes will bring about more equitable and better performing health systems than at present.

In this article the authors (Frenk *et al.*, 2010:1924) describe learning as follows:

- Informative learning is about acquiring knowledge and skills and its purpose is to produce experts;
- Formative learning is about socialising students around values and its purpose is to produce professionals; and
- Transformative learning is about developing leadership attributes and its purpose is to produce enlightened change agents.

Transformative learning derives from the work of several educational theorists, notably Freire and Mezirow. Frenk *et al.*, (2010:1924) take a pragmatic stance and view transformative learning as the highest of the three levels.

Interdependence in education marks a significant shift in the discussion in medical education, which is more usually characterised by stand-alone faculties with stand-alone curricula, which in turn has produced graduates who stand alone. Interdependence refers to the ways in which “various components interact with each other, without presupposing that they are equal” (Frenk *et al.*, 2010:1952).

The authors outline three major shifts that characterise the interdependence (Frenk *et al.*, 2010:1952):

- From isolated to harmonised education and health systems;
- From stand-alone institutions to world-wide networks, alliances and consortia; and
- From self-generated and self-controlled institutional assets to harnessing global flows of educational content, pedagogical resources and innovations.

The significance of the shift to interdependence is that the position of the medical practitioner changes from the role of an ‘outsider’ working inside a health system to that of being co-responsible not only for the care of the patient, but also the care of the health system.

Not only is the position of the medical practitioner being queried, but also that of medical schools, as changes in health care delivery systems and increasingly medical schools work less independently and more with partners in an interdependent system (Nora, 2010:S46; Berwick & Finkelstein, 2010:S59). These interdependencies have led to encouraging the inclusion of a population health perspective in medical education. The current social context requires preparation of medical practitioners to “thrive in systems of inescapable interdependence; and their comfort in that interdependence is now a precondition to providing high-quality care” (Berwick & Finkelstein, 2010:S58) and by extension high-quality education and professional learning.

The shift to interdependence is also accompanied by a global move to social accountability as a way for medical schools to have, in collaboration with other

professional schools, an impact on health system performance. Medical schools have a social accountability that is defined as “the obligation to direct their education, research and service activities towards addressing the priority health concerns of the community, region and/or nation they have a mandate to serve” (Boelen, 1993:9).

This shift to social accountability has been slow as the Global Consensus for Social Accountability (GCSA) of Medical Schools (Global Consensus for Social Accountability [GCSA], 2010:3) was developed 17 years after the first mention in the literature. The purpose of this global consensus was to describe how medical schools can affect health-system performance in addition to people’s health status and implies that appraisal of achievements will have high-quality outcomes as criteria.

Ten thematic areas were identified via the three-stage Delphi process involving 130 organisations and individuals:

The consensus on social accountability embraces a system-wide scope from identification of health needs to verification of the effects of medical schools on those needs. The list of ten areas reflects this logical sequence, starting with the understanding of the social context, an identification of health challenges and needs, and the creation of relationships to act efficiently (areas 1 and 2). Among the spectrum of the required health workforce to address health needs, the anticipated role and competences of the doctor are described (area 3), serving as a guide to the education strategy (area 4), which the medical school, along with consistent research and service strategies, is called to implement (area 5). Standards are required to steer an institution towards a high level of excellence (areas 6 and 7), which national authorities need to recognise (area 8). While social accountability is a universal value (area 9), local societies will be the ultimate appraisers of achievements (area 10) (GCSA, 2010:5).

The centenary celebration in 2010 of the Flexner report kindled interest among medical schools to review what progress had been made to date with regard to the implementation of his key ideas. A persistently overlooked area since 1910 is that of public health (also referred to as ‘population health’ and ‘global health’ – although there are shades of difference).

While the use of the term ‘population health’ or ‘global health’ is useful, as it more clearly highlights the delineation between individual and populations, the term ‘public health’ is used more commonly both nationally and internationally (despite being problematic as the term is easily confused with the public(ly) funded health system. Ambiguous terminology clouds the facilitation of learning of public health in the medical curriculum.

2.4 Public health in the undergraduate medical curriculum

Public health is often taught in the undergraduate medical curriculum in isolation from the basic sciences and clinical disciplines. This isolation combined with the reality that many of the lecturers of public health are not medical practitioners but other health care professionals results in further isolation. Stone (2000:9) describes the facilitation of learning about public health among medical students as deeply problematic, as medical students regard the subject as peripheral at best to their key professional aspirations – clinical knowledge and clinical skills. As public health focuses on the health of populations rather than of individuals, this view is not an unjustifiable one. This population focus is the root of the debate on whether public health should even be included in the medical curriculum.

The inclusion of public health in the undergraduate medical curriculum is strongly debated in the literature and as early as 1939 an article was published about the concerns of including public health in the medical curriculum (Maeshiro *et al.*, 2010:213). Woodward (1994:390) and Riegelman (1991:254) highlight the argument that as a population-based subject public health holds little interest for medical students, who are ultimately interested only in the diagnosis and treatment of individual cases of disease. Woodward (1994:389) argues that this clinical focus is so entrenched in the minds of students and faculty members alike, that public health will always be relegated a minor role in the medical curriculum.

Two major arguments against the inclusion are: first, that it is “an unrewarding and inefficient use of scarce resources” (Woodward, 1994:389) and, second, public health has no need of medicine as some of the most important activities (such as population-based health education) are beyond the scope of the medical curriculum.

2.4.1 The argument *against* public health in the undergraduate medical curriculum

The first argument is that medical students are less interested in healthy people than ill patients and that concepts such as populations are so far removed from their individual-patient focus, that these concepts are “over the conceptual horizon and out of sight for most” (Woodward, 1994:390). Public health “challenges students to make sense of the big picture of health and illness, but this runs directly against the reductionist teaching of biomedical specialists whose worlds revolve around pathogenesis not aetiology” (Woodward, 1994:390).

The second argument against the inclusion of public health in the undergraduate curriculum is that the field of public health has a far larger scope and impact than medicine alone. Woodward (1994:390) links much of the argument to the models of public health and the consequences of choices of the inclusion with or the exclusion of schools of public health from schools of medicine. Woodward (1994:390) describes a marked decrease in the time spent by public health faculty with medical students. This decline he attributes both to the proliferation of postgraduate programmes in public health and the reality that public health academic staff are a scarce resource. This scarcity leads to a situation where “teaching undergraduate medical programmes absorbs the precious time, energy and good temper of too many public health professionals” (Woodward, 1994:390) that could be better spent on those who are interested.

The conclusion to the arguments against inclusion are that the most pivotal public health interventions of community empowerment, community interventions, design of safe environments, and the monitoring and evaluation of disease patterns are remote from the medical curriculum.

2.4.2 The argument *for* public health in the undergraduate medical curriculum

The counter arguments posed by Woodward (1994:391) are stated as “two simple, symmetrical and unassailable arguments in favour of public health within the medical curriculum: medicine needs public health and public health cannot function without clinical medicine”.

The primary argument has at its heart the concept of a population perspective that is integral to good clinical practice. The questions that clinicians ask themselves – whether consciously or not – are why a condition occurs, what can be done to prevent it, and what can be done to cure it? These are at their roots public health questions. In addition to the questions around disease occurrence, activities such as investigations and prognosis also require a population perspective due to their probabilistic nature. For example, it is essential for clinicians to be aware of the prevalence of a particular disease or condition in the area so as to make a correct diagnosis. A cornerstone to this argument is that “one objective of medical education must be to produce graduates who can think in multiples of individuals as well as fractions” (Woodward, 1994:391).

The shift to include public health can be evidenced in the increase in the public health elements found in the guidelines for medical education produced by national medical councils. One example is the Australian Medical Council that explicitly includes public health in fifteen of its outcome statements (Australian Medical Council, 2012:2-4).

External changes in health systems also result in implications for practice. For example, the National Health Service in the UK has made doctors responsible for local health budgets and, as a result, clinicians are faced with public health choices around the provision of care.

The second argument for the inclusion is quite simply that public health needs the medical profession as this professional group has substantive influence on “opinion, political decisions and ultimately the health of the population” (Woodward, 1994:391). This elevated status of medical practitioners is common in most countries and can be ascribed to the selection and development of an intellectual elite. This elevated status of doctors is key to public health, in that public health is a political enterprise that requires the support of the powerful medical profession.

Woodward (1994) concludes the debate with a clear single message: retreat from the classroom is not an option, even though the task is daunting. Rather, lecturers should spend their energy on finding different and more effective ways of facilitating learning about public health that we think are important. “Public health has a place, an important place, in undergraduate medical education” (Woodward, 1994:392).

In 1993 the General Medical Council (GMC) in the UK called for a greatly increased role for public health in the undergraduate curriculum. In the subsequent reviews described by Stone (2000:10) there has been some progress towards integration of public health in the medical curriculum. As there are few practical examples of the inclusion of public health in the undergraduate medical curriculum and slow progress with the integration, Stone (2000:12) proposes a theoretical framework for integrating public health with clinical practice.

Table 2-2: Theoretical framework for integrated learning about public health and clinical practice (Stone, 2000:13)

	Epidemiology	Behaviour	Environment	Services
Prevention	Concepts, principles	Individual risk factor identification/modification	Supporting creation of safer, healthier environments	Policies, resources
Diagnosis	Disease frequency Accurate history taking Validity of tests	Risk vs. cause Aetiological formulation Role of smoking, alcohol, drugs, diet	Housing, climate, pollution, transport, workplace, school Microbes, herd immunity, family, neighbourhood, poverty	Resources, access to NHS
Treatment	Critical appraisal of evidence Clinical guidelines	Compliance Behavioral change	Modification of environmental factors Ameliorating impact of poverty	Rationing, pharmacopoeias, service planning, management
Follow-up	Recurrence rates Prevention of recurrence Adverse effects of treatment Clinical audit	Quality of life Risk of occurrence	Monitoring environmental, familial, social change	Geography, community, facilities

The headings in the first row of Table 2.2 indicate four key public health specialties or disciplines: epidemiology, (social) behaviour, environment, and services while the headings in the first column indicate the clinical skills that relate to disease staging. The

intersecting cells of the table contain some of the public health topics that are associated with clinical practice that could form the vital link for engaging medical students in public health. This framework provides medical practitioners with a valuable departure point for transforming their facilitation of learning practices to include public health at the point of patient contact. What is problematic with this approach is that it requires medical practitioners who are either interested or qualified in public health. Although it is difficult to estimate the numbers of those who are interested it is clear that those medical practitioners who are formally qualified in public health are in short supply – in the USA this number makes up less than one per cent (Beitsch, Brooks, Glasser, Coble Jr, 2005:149).

Often public health programmes are not integrated into the medical curriculum and as a result this isolation “accentuates the challenge faced by medical educators in trying to teach public health effectively within a medical culture that values acute care of individual patients and their families over population-based health protection, health promotion, and disease prevention” (Tyler, Hau, Buxton, Elliot, Harvey, Hockin & Mowat, 2009:1307).

The difference in opinion on whether to include public health in the medical curriculum or not and the different approaches (integration or separation in the curriculum) deepen the confusion about what are distinctive public health subjects as well as their relevance to medical education (Tyler *et al.*, 2009:1307).

A key characteristic of the inclusion of public health in the medical curriculum has been the slowness of implementation. Mention is made in the 1910 Flexner report and again mention is made in an article in 1939 (Maeshiro *et al.*, 2010:213) but little was written on the subject until the 21st century (See Box 2-3).

Box 2-3: Key reports on public health in the medical curriculum (USA, Canada, UK)

USA:

2002: The Future of the Public’s Health in the 21st century by the Institutes of Medicine (IOM)

2003: Who will Keep the Public Healthy? Educating Public Health Professionals for the 21st Century by the Institutes of Medicine (IOM)

2007: Training Physicians for Public Health Careers by the Institutes of Medicine (IOM)

2010: Educating Physicians: A Call for Reform of Medical School and Residency by the Carnegie Foundation

Canada:

2009: An Environmental Scan of Best Practices in Public Health Undergraduate Medical Education by the Association of Faculties of Medicine of Canada (AFMC)

United Kingdom:

2008: Public Health Education for Medical Students – A Guide for Medical Schools by the Academic Departments of Public Health

A proliferation of strategies on how to include public health in the medical curriculum has surfaced in the literature, including the persistent understanding in the American literature that working in the publicly funded sector is equivalent to public health.

2.4.3 Strategies to integrate public health in the medical curriculum

I have loosely grouped the proliferation of strategies that have been described in the literature into three strata:

- Macro-level (international or national level);
- Meso-level (institutional policy/curricular level); and
- Micro-level (student contact level).

The typology by no means is meant to suggest that strategies cannot be employed at different levels, nor is it an exhaustive listing of every possible strategy to facilitate learning that has been employed and described in the literature. Rather the purpose of the typology is to give some shape to the broad variety of strategies employed in trying to include public health in the medical curriculum. A brief explanation of each listed strategy follows the table.

Table 2-3: My typology of strategies to include public health in the medical curriculum

Stratum	Some strategies described in the literature
Macro-level	<ul style="list-style-type: none"> - Networks - Conferences - Accreditation - Collaborative projects - Competency frameworks
Meso-level	<ul style="list-style-type: none"> - Undergraduate degree programmes (non-health) - Undergraduate medicine and MPH joint programmes - Common interprofessional curricula - Faculty development - Use of overarching frameworks of learning outcomes/ competencies - Integration or separation of public health
Micro-level	<ul style="list-style-type: none"> - Experiential learning - Shared educational resources

2.4.3.1 Macro-level strategies

- *Networks as strategy*

In Canada the Public Health Agency of Canada was created in 2004 and subsequently a network of educators interested in public health has been established. The Public Health Educators Network (PHEN) has achieved consensus on a set of common educational objectives (subsequently accepted by the Medical Council of Canada) and also develops and shares educational resources and tools through an online repository (Maeshiro *et. al.*, 2010:213). PHEN specifically focuses on (Maeshiro *et al.*, 2010:214):

- Promoting curriculum standards for public health;
- Developing ways to support better integration of public health content into the clinical curriculum; and
- Conducting faculty development needed to make the facilitation of learning about public health effective.

Through PHEN student-run public health interest groups are also encouraged and supported. The intention is that students will ignite a passion for public health, raise awareness amongst other students and encourage more to consider the profession (Maeshiro *et al.*, 2010:214).

PHEN implements the recommendations of the key report by the Association of Faculties of Medicine of Canada (AFMC) entitled: *An Environmental Scan of Best Practices in Public Health Undergraduate Medical Education* (Association of Faculties of Medicine of Canada, 2009). Some of the key recommendations that are being implemented are enhanced structural support for public health medical education and for community agencies to enable community-based learning for medical students.

- *Conferences as strategy*

A number of key conferences have been influential in informing the debate on public health in the medical curriculum.

The Consensus Conference on Undergraduate Public Health Education (2006) in the USA resulted in a set of recommended learning outcomes or competencies for undergraduate public health education entitled '*The educated citizen and public health: a consensus report on public health and undergraduate education*' (Riegelman, Albertine & Persily, 2007). The emphasis was on developing learning outcomes for all undergraduate public health education programmes (the concept of the educated citizen) but can clearly also be used in medical education. The learning outcomes include an emphasis on gaining a 'big-picture' or population perspective on health and health care.

The Revisiting the Medical School Educational Mission at a Time of Expansion Conference (2008) held in the USA signposted the shift of focus to a more encompassing view of medical education. The aim was to align medical education with societal needs and expectations. As a result the conference discussed the identified future demands that are not yet being addressed in medical education. Although the name of the conference reflected the expansion of the number of medical schools, it also reflected the expanding role of the medical practitioner to ask questions of how graduates would respond to public accountability; poor quality; persistent racial and ethnic disparities in health and health

care; unsustainable health care costs; and the increase in the burden of chronic illness and disability (Hager & Russell, 2009:12).

The conference concluded that medical schools need to focus on placing “less emphasis on hospital venues and more on community settings as ‘classrooms’” and broadening the “understanding of public health and non-biologic determinants of illness” (Hager & Russell, 2009:18). A key recommendation referred to innovations in medical education. “All medical schools should ensure that students become familiar with critical subject matter not yet incorporated sufficiently in the typical curriculum” (Hager & Russell, 2009:18). Of the examples listed the following two are of particular interest: principles of public health and prevention; and the organisation, financing, and performance of the health care system (Hager & Russell, 2009:18).

In South Africa the annual Public Health Association of South Africa (PHASA) conference does not focus on education in public health, but has nevertheless provides an opportunity for like-minded public health educators to discuss their educational concerns.

- *Accreditation as strategy*

Internationally accreditation bodies are expanding the general requirements for medical school accreditation as a response to the recommendations for changing undergraduate medical education.

In the USA the Liaison Committee for Medical Education (LCME) is the recognised accrediting authority for the medical degree in American and Canadian schools. All medical schools must now meet 130 specific standards determined by the LCME to maintain their accreditation (Skochelak, 2010:S26).

In South Africa the South African Qualifications Authority (SAQA) and the Health Professions Council of South Africa (HPCSA) are the recognised accrediting authorities. Accreditation and licensure were the reason for the rapid changes in medical education after the Flexner report. The inclusion of public health as a core requirement for accreditation of medical schools has not yet been considered in South Africa. The HPCSA’s Questionnaire for Self-assessment for Faculties/Schools of Medicine/Dentistry

(Health Professions Council of South Africa [HPCSA], 2007:6) focuses on ensuring a “community-based and primary health care orientation” in the curriculum. While the term community is often used as a synonym for public health the term is not an equivalent term as the community is often the target population for public health interventions and programmes. Another caveat is that clinical training can take place in the community – and therefore although community-based it is not necessarily public health.

- *Collaborative projects as strategy*

A project funded by Pew Charitable Trusts and the Rockefeller Foundation was launched in 1986 to assist 17 academic health centres to broaden their mission to address the health needs of their surrounding communities. Major results reported by the sites included (Edelman & Guttman, 2001:3):

- Development of a population-based curriculum for health professions education and integrating population-based concepts into the general curriculum. Such a curriculum focuses on concepts of population health that underpin new approaches to community- and population-based practice;
- Cross-disciplinary partnerships between medical schools and related fields;
- Partnerships with community-based organisations and agencies;
- Development of services and disease prevention programmes to improve community health;
- Creation or expansion of centres for population-based research;
- Collaboration with other academic health centres; and
- Participation in health-reform legislation and health-services planning and priority setting.

The American Medical Association (AMA) and the American Public Health Association (APHA) created the Medicine and Public Health Initiative (MPHI) in 1994. The purpose was to bridge the gulf between the two disciplines. The MPHI recommended seven critical shared agendas (Beitsch *et al.*, 2005:150):

- Engaging the community;
- Changing the education process;
- Creating joint research efforts;
- Devising a shared view of health and illness;
- Working together in health care provision;

- Jointly developing health care assessment measures; and
- Translating initiative ideas into action.

In order to move the work of the MPHI forward, grants were given to 19 states via the Cooperative Actions for Health Program (CAHP). In total 414 examples of collaboration were identified and can be put into six broad categories (Beitsch *et al.*, 2005:150):

- Improved health care by coordinating services for individuals;
- Improved access to care by establishing frameworks to provide care for uninsured and under-insured;
- Improved quality and cost effectiveness of care by applying a population perspective to medical practice;
- Used clinical practice to identify and address community health problems;
- Strengthened health promotion and health protections by mobilising community campaigns; and
- Shaped the future direction of the health system by collaborating around policy, training and research.

The authors outline the difficulty in sustaining the momentum of MPHI due to changes in leadership and shifting priorities. It is interesting to note the variability in understanding of what public health is, by the inclusion in the list of providing care for the uninsured and under-insured. This (mis)understanding is quite pervasive as there are numerous other examples such as a project in Florida that increased medical practitioner involvement in charity and low-income care via the provision of liability immunity (Beitsch *et al.*, 2005:151).

A significant partnership between the Centers for Disease Control and Prevention (CDC) and the Association of American Medical Colleges (AAMC) was created in 2000 and in 2003 seven medical schools were awarded grants as pilot Regional Medicine-Public Health Education Centers (RMPHECs) to “improve public health education for their students through collaborations with local or state departments” (Maeshiro *et al.*, 2010:214) (Table 2-4).

Table 2-4: RMPHEC project – participating schools and key strategies (Maeshiro, 2010: 214-5)

Name of Medical School	Strategy
Harvard Medical School	Uses blocks in an attempt to give population health an identity
Brody School of Medicine	Embeds population health into existing programmes
Case Western University	Uses a hybrid model: population health is a focus for the first of six blocks that make up the first two years of medical school; thereafter population health is integrated through the remaining five years
University of Rochester and Stanford	Uses experiential learning where students can apply population skills
Duke University Medical Center	Has committed to include population health across its research, service and educational missions

A second round of funding in 2006 aimed to fully integrate population health into the medical school curriculum by working with public health partners. It was a requirement for funding that at least one of the partners had to be a local or state health department.

To date in South Africa no similar wide-scale collaborative projects between institutions have been published.

2.4.3.2 Meso-level strategies

- *Including public health in undergraduate degree programmes (non-health) as strategy*

In some countries public health is offered as either an elective as part of non-health graduate education designed to generate a well-rounded educated citizen (Roe, 2009:19) or as a graduate programme. The majority of students who enrol in existing undergraduate public health and epidemiology subjects are hopeful of entering medical school (Riegelman & Garr, 2008:322). The advantage to the medical schools is that these students have demonstrated competencies for “reading the research literature, an appreciation of the determinants of disease, and an understanding of the structure of the U.S. health care system [and] will be better prepared to incorporate evidence-based

thinking and a population perspective into their education” (Riegelman & Garr, 2008:325). The absence of public health in non-health related undergraduate programmes in South Africa makes this strategy unattainable at present. In addition the primary motivation of the American undergraduate students to do public health at an undergraduate level is to enter medical school. This tactic is only of any use if there is a graduate entry programme for medicine, and in South Africa there is only one medical school with a graduate entry programme.

- *Undergraduate medicine and MPH joint programmes as strategy*

One way of boosting the learning of public health principles in medical education is to offer a joint degree (Medicine and Master of Public Health) which is aligned with the IOM that recommends that a “significant proportion of medical school graduates should be fully trained in the ecological approach to public health at the master of public health (MPH) level” (Maeshiro, 2008:319). This strategy is highly dependent on a graduate entry medical degree programme as the applicant needs to meet the application criteria for both degrees.

- *Common interprofessional curricula as strategy*

In health sciences it is usual that each discipline designs, develops, and implements their own curricula. As professional roles have blurred and in many cases converged it has become clear that there is value in a common curriculum that “(1) assumes the need for and value of a common curriculum framework outlining the content that **all** health professions students should know and skills they **all** should have; (2) articulates how to organize such a framework; and (3) specifies what it should be called” (Allan *et al.*, 2004:472).

In order to create such a framework across the core health professions, the Healthy People Task Force was formed as a result of joint action of the Association of Teachers of Preventative Medicine (ATPM) and the Association of Academic Health Centers (AAHC).

Representatives from allopathic medicine, dentistry, nursing, nurse practitioners, osteopathic medicine, pharmacy and physician's assistants⁵ participated. The Task Force includes representation for Student Health Alliance and two groups: Community-Campus Partnerships for Health and the Association of Schools of Public Health (ASPH). The work of the Task Force resulted in the Clinical Prevention and Population Health Curriculum Framework that could be used in at least the seven health professions represented on the Task Force. The name was chosen to "include both individual- and population-orientated preventive efforts as well as the interactions between them" (Allan *et al.*, 2004:473).

- *Faculty development as strategy*

Faculty development in medical schools has emerged as an almost ubiquitous strategy, not to strengthen the facilitation of learning of public health in particular, but rather the strengthening of all facilitation of learning. In many cases this responsibility rests with the office of medical education that supports curriculum development and review; the development of faculty; but also research on the impact of the implemented change (Skochelak, 2010:S30; Anderson & Kanter, 2010:S4). At the University of Pretoria there is a compulsory Medical Education Orientation Programme (MEOP) in addition to the generic orientation for all new academic staff.

Valuing facilitation of learning practices in medical education has been less consistent, but is nevertheless on the rise and is linked to more formal acknowledgment. One example is Harvard University, which in 2008 elevated facilitation of learning to a new level in the area of promotion and tenure as 'teaching and educational leadership' was designated as an area of excellence for faculty (Anderson & Kanter, 2010:S3). More common are examples of facilitation of learning awards such as the Education Innovation awards at the University of Pretoria.

⁵ Called clinical associates in South Africa.

Several initiatives have emerged as ways to improve health professional education across borders. One such initiative is the Foundation for Advancement of International Medical Education and Research (FAIMER), which aims to improve world health through education (Foundation for Advancement of International Medical Education and Research, 2012). Key in the FAIMER approach is to develop local regional institutes, such as the Southern Africa FAIMER Regional Institute (SAFRI). All of these regional institutes replicate the FAIMER strategies for faculty development; research that informs health workforce policy and practice; and the generation of data to enable educational quality improvement decisions.

- *Use of frameworks of learning outcomes/competencies as strategy*

Numerous national frameworks of roles and learning competencies such as CanMEDS (Canada) and *Tomorrow's Doctors* (UK) have been developed as an attempt to describe the desirable outcomes for all graduates, as well as the standards for facilitation of learning and assessment required in order to achieve these outcomes. Public health competencies, although seldom described directly, are found in these competency frameworks. South Africa adapted and adopted the CanMEDS role framework in 2012.

- *Integration or separation of public health as strategy*

The choice of whether to integrate public health or to keep it separate is at the discretion of the university. In the RMPHEC project, for example, the Harvard Medical School opted to isolate the subject in order to give it an identity while the Brody School of Medicine embeds public health into existing programmes (Table 2-4). Similar strategies are found in South Africa with the University of Pretoria opting for the strategy of integration.

2.4.3.3 Micro-level strategies

- *Experiential learning as strategy*

Experiential learning is described as “the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping

and transforming experience” (Kolb, as cited in Dochy, Gijbels, Segers & van der Bossche, 2011:55). A key point in the Flexner report is that rote learning separated from clinical learning is not acceptable. It therefore follows that students should have “practical experiences in the community where they can apply principles central to improving population health” (Maeshiro *et al.*, 2010:216). Opportunities for this exist with the expansion of learning platforms into more community-based settings and the use of service learning as a strategy to facilitate learning. The expansion of these experiential opportunities holds particular challenges in that there is seldom a public health professional at these sites and so possible learning opportunities are missed.

Exposure to community-based settings or the use of service learning strategies alone does not equate to meaningful learning experiences as found by Tyler *et al.* (2009), who uncovered almost uniform negativity regarding public health amongst the focus groups at the five medical schools in their study. Although not all students need to like public health their dislike should be on a par with other specialties. The students’ dislike was not linked to any particular facilitation of learning strategies, as all five schools used different strategies, not only experiential learning (Tyler *et al.*, 2009:1310).

- *Shared educational resources as strategy*

The web-based Prevention Education Resource Center (PERC) has been developed under the auspices of the Association for Prevention Teaching and Research (APTR) to provide a range of learning materials for clinical education and public health for use by educators (Riegelman & Garr, 2009:322). In the local context, the Open Education Resources Africa (OERA) has some resources for public health, but at a postgraduate level.

In summary, little doubt exists that multiple strategies have been employed to include public health in the medical curriculum internationally. The question is how South Africa has answered the question on whether to include public health and what this decision means for my professional landscape.

2.4.4 Public health education in South Africa

All the South African schools of public health were created around 1998, approximately 90 years after the expansion of schools in other developing countries in the 1920s and 1930s (Fee & Bu, 2007:978). In 2013 there were nine schools of public health registered with the South African Qualifications Authority (SAQA). Typically, schools of public health offer only postgraduate programmes, as there is no registered undergraduate public health qualification.

It is incorrect to assume that public health education arose fully formed only a few years ago in South Africa. Important precursors were the Departments of Community Health or Community Medicine, which were a common feature of faculties of medicine – now often called faculties of health sciences. These departments were responsible for input into the undergraduate medical curriculum as well as the development of medical specialists at a master's level, i.e. the Master in Medicine (MMed) Community Medicine. This medical specialty has subsequently been re-invented as the MMed in Public Health Medicine.

This distinction between public health and public health medicine is often problematic as the distinction in the content is not explicit (Stone, 2000:10). Stone argues that if the difference lies only in the qualification of the practitioner then the dilemma for educators is which curricular content should be included in the undergraduate medical curriculum? The unclear distinction between public health and public health medicine – within the context of the already existing duality of scientific research and practice – only highlights the ambiguities and uncertainties in the field of public health in general and the inclusion of public health as a subject in the medical curriculum in particular.

2.4.5 Public health in the South African undergraduate medical curriculum

The eight medical schools in South Africa are not equally distributed over the nine provinces. The two wealthiest provinces (Gauteng and Western Cape) have two medical schools each and three provinces (Mpumalanga, North West and Northern Cape) have none to date.

The medical enrolments (all years) usually average at 8 500 students annually, with a stable annual graduation over the past ten years of approximately 1 300 graduates.

International trends in medical education such as problem-based learning, expansion of clinical training settings, curricular models that incorporate electives and earlier and more extensive longitudinal clinical experiences have triggered changes in health care and higher education (Karle, 2004:205; Hager & Russell, 2009:177; Seggie, 2010:10). As a consequence, there has been a major undergraduate medical curriculum review in South Africa, for example some medical schools shortened their programme from six to five years while one university has added a graduate entry programme.

These innovations are mentioned in order to highlight the variability in terms of entry requirement, length of programmes, as well as the curricula of the undergraduate medical degree in South Africa. What remains unclear is whether the inclusion of public health has formed part of this review process.

The trends in education have also necessitated reform such as the emphasis on problem-orientated learning in the Health Professions Council of South Africa's (HPCSA) regulations. Regulations regarding the education and training of medical students and the accreditation of medical schools fall within the ambit of this parastatal organisation that was founded in 1997. The HPCSA replaced the South African Medical and Dental Council (SAMDC) founded in 1928. The HPCSA is responsible for:

- Developing and maintaining guidelines regarding medical practitioner education and training;
- Accrediting all undergraduate and postgraduate health care practitioner education and training programmes in South Africa; and
- Registering all health care practitioners working in the country.

In 1995 the National Department of Health issued regulations governing the education and training of medical practitioners in South Africa and in 2009 the HPCSA released new regulations that govern the training of medical practitioners. These regulations were a result of a number of key documents and meetings. The most influential were the Edinburgh Declaration of the World Federation for Medical Education (1988), the Cape Town Declaration of the World Federation for Medical Education (2003), the UK General

Medical Council recommendations (1993), the World Summit on Medical Education recommendations (1993) and the ‘five-star doctor’ concept developed by Boelen (1993) from the WHO.

Curricular reform in South Africa was also driven by the 1999 document ‘*Education and Training of Doctors in South Africa*’ issued by the HPCSA, which made it clear that accreditation would be dependent on (Seggie, 2010:8):

- Mitigating the current problems of the Flexnerian model;
- Acknowledgment that medical students are adult learners; and
- Producing graduates suitable for post-apartheid South Africa in that they were in line with the primary health care (PHC) approach to health care delivery.

The changes required for the PHC approach demanded several radical shifts (Seggie, 2010:8-9):

- From a curative and rehabilitative focus to a focus on prevention and promotion;
- From an urban, specialist focus to a focus on the common diseases and disabilities of both rural and urban South Africans;
- From a tertiary level of care to the ability to practise at multiple levels (including primary, secondary as well as tertiary); and
- From an individual-patient perspective with regard to human rights and ethics to a broader population-orientated view.

It is not only the curricular content that received attention, but similarly the facilitation of learning strategies. One example is the separation of basic and clinical sciences in a ‘block system’ that results in a sense of fragmentation and students feeling overwhelmed by the theoretical load required of their basic science modules. The result is that many were forced to depend on memory alone and, as a result, become rote learners (Seggie, 2010:10). Typically classes were in a large-class format and were knowledge-based and lecturer-centred with minimal integration. Clinical exposure was largely limited to patients in tertiary referral hospitals.

The bio-medical model dominated, with little attention given to the bio-psychosocial model of patient care or “population health, health policy and the organisation of the health services” (Seggie, 2010:10). Reforms have focused on addressing these less-than-

desirable curricular and instructional design characteristics. Some of these reforms have been enshrined within regulation.

The HPCSA (2009) set a list of general requirements (Subregulation 5) relating to curricula and learning approaches for the undergraduate degree in medicine. One of these requirements is that “medical public health as a theme shall figure prominently throughout the curriculum” (HPCSA, 2009:10). The insertion of the word ‘medical’ into public health is an interesting addition that was not in any of the previous draft regulations. This insertion could be an attempt by the medical profession to ‘medicalise’ a non-medical subject and thereby exercise control.

In particular, the regulations also make specific mention of one public-health-related skills outcome (health promotion) and four value and attitude outcomes (HPCSA, 2009:9):

- Reg 4(6a) a **commitment to the health care of the community** with regard to their physical, mental and social well-being;
- Reg 4(6b) a recognition of the importance of **primary health care** and of a **community orientated approach to health care**;
- Reg 4(6h) acting as an advocate for his or her patients and **communities**; and
- Reg 4 (6i) being sensitive to the **health needs of the country**.

Interpretation of these requirements is left to the discretion of the medical schools, with very little public debate on what would constitute medical public health as a prominent curriculum theme. Another central issue is who should determine the overarching learning outcomes of the public health component: schools of public health or schools of medicine?

The facilitation of learning about public health in the undergraduate medical curriculum cannot be divorced from the basic divide in public health education in general: that of advancing the knowledge of hygiene (e.g. epidemiology and bacteriology) as well as to train public health leaders (Fee & Bu, 2007:977). Although leadership is mentioned as a desirable character trait of the graduate, it cannot be assumed that this is conceptualised as beyond leadership within the multi-disciplinary team. Leadership in public health is more closely aligned to activism and redressing inequities than working well in a team.

The choice of whether to integrate public health in existing modules in the curriculum or to have distinctive, separate modules on public health has been left to the discretion of each university. The University of Pretoria (UP) has taken the former approach.

2.4.6 Public health in the University of Pretoria's undergraduate medical curriculum

The Faculty of Health Sciences at the University of Pretoria has four schools: the School of Dentistry; the School of Healthcare Sciences; the School of Health Systems and Public Health (SHSPH); and the School of Medicine. The School of Medicine is tasked with both under- and postgraduate medical education and has 28 departments.

The SHSPH was formed originally from one of these departments: the Department of Community Health. This division into a separate school took place in 1998 and, as a result, the SHSPH has two departments, one of which is the original Department of Community Health (now Community Medicine). For this reason the SHSPH still participates in the undergraduate medical curriculum (although it is a school that only offers postgraduate programmes) and still includes several postgraduate medical programmes, most notably the medical specialty Masters in Medicine (Public Health Medicine).

The University of Pretoria has a six-year medical curriculum that is structured around 18 blocks, 14 special activities (SA) and five special study modules (SMO). Special activities are linked to a block and are of shorter duration (between one and seven weeks) and usually do not form part of the examination. Special study modules or SMOs are assignments that are linked to blocks and students choose a topic (often from a list of suggested topics) that is linked to the content and outcomes of the preceding block, do reading around the topic and submit their reports to the block chairperson. No mark is generated from these SMOs – students either meet requirements or not. (The curriculum outline for 2013 is attached as Appendix A.)

In addition, third-year students have an elective module and fourth-year students have a preceptorship. Each block is organised by a block chair.

At the University of Pretoria, public health is included as one of the ‘golden threads’. The golden threads are important humanitarian knowledge, attitudes and skills that medical students should have at the end of their sixth year of study. The threads have a defined curriculum but the facilitation of learning does not take place at a single point in time such as with the other blocks or special activities. The golden threads are spread out over the six years with varying amounts of facilitation of learning in the blocks and/or special activities/modules. Whereas the block/special activity/special module might focus on one body system, a golden thread would focus on skills that would be used in working with all body systems.

The overall aim of the golden threads is to facilitate students’ development as professional, responsible, effective medical practitioners. The threads prepare students for the non-physical, humanitarian aspects of the practice of medicine and by providing a balance to the physical aspects of medicine the threads contribute to a holistic approach to health. These are (Kruger, 2008:2):

- Interpersonal skills;
- Group- and teamwork;
- Professional attitudes;
- Bio-ethics;
- Research-based clinical practice;
- Clinical problem solving and critical thinking;
- Health and the law;
- Economy and health; and
- **An epidemiological approach to health.**

The golden thread of the ‘epidemiological approach to health’ represents the inclusion of public health by the SHSPH in the undergraduate medical curriculum. The responsibility for the thread is that of the Department of Community Medicine at the SHSPH. The learning outcome of this golden thread is: to evaluate human disease occurrence, causation and control in a health care system.

Epidemiology can be defined as “the study of the distribution and determinants of health-related states or events in specified populations, and the application of this study to control of health problems” (Last & Abramson, 2001:62). Therefore this golden thread as currently

formulated speaks only to one of the five main specialties/disciplines of public health. In practice there is a disconnect between that which has been written down in the format of an outcome of this golden thread (a narrow scope) and that which the academic staff are facilitating (a broader scope).

A Charter for Professionalism was developed based on the integration of the nine golden threads with the HPCSA's guidelines for professionalism, as well as the final year graduation pledge. Topics that are strongly aligned to public health are highlighted in the table below. These topics clearly cover a wider interpretation of public health than the narrowly defined epidemiology focus of the formal golden thread.

Table 2-5: The three main areas of the Charter for Professionalism (University of Pretoria)

Area	Details
Professional competence	<ul style="list-style-type: none"> - Problem solving and critical thinking skills - Good clinical records - Epidemiological approach - Knowledge and application of laws - Understanding of health care systems - Commitment to improve knowledge and skills
Ethical values	<ul style="list-style-type: none"> - Ethical approach to clinical and research ethical dilemmas - Acknowledge human rights - Patient autonomy for informed decisions - Honesty - Contribute to betterment of society while distributing health care resources fairly
Personal attributes	<ul style="list-style-type: none"> - Professional relationships characterised by: - Desirable personal attributes e.g. compassion and empathy - Respect including demeanor and punctuality - Maturity - Good communication and interpersonal skills - Ability to work in a team

It is as yet unclear as to why this particular grouping of professional competence, ethical values and personal attributes was chosen or grouped in this fashion. The cognitive domain (e.g. understanding of health care systems and problem solving and critical

thinking), emotive domain (e.g. ethical values) and practical domain (or skills) are loosely represented. However, skills such as good clinical skills are strangely absent. The Charter also does not address the concept of new professionals for the 21st century. Such professionals promote quality, embrace teamwork, uphold a strong service ethic, and are centred around the interests of patients and populations (Frenk *et al.*, 2010:1946).

The poor alignment of the threads with the charter is apparent. For example ‘research-based clinical practice’, is absent in the charter; however, ‘understanding of health systems’ does not appear as a thread, but is in the charter.

Also evident from the charter is the focus on individual independence and autonomy with regard to clinical and research ethics. This individual focus precludes any opportunity to discuss how “individual autonomy can marginalise and even undermine adequate consideration of public health ethics, and also distort discussions of justice and health care” (O’Neill, 2002:37). One example of this kind of discussion that would encourage students to examine their own views would be mandatory testing for HIV.

When comparing the list of the golden threads with the 2009 HPCSA regulations on the curricula of medicine, it is clear that there is no mention in the golden threads about leadership skills or advocacy. The HPCSA regulations of 2009 specifically include leadership as well as the ability to work in a multidisciplinary team as a skills outcome. These regulations also specifically include acting as an advocate for patients and communities as a value and attitude outcome. This advocacy role reflects one of the attributes of the ‘five-star doctor’ (Boelen, 1993:6), which is discussed later in greater detail. These omissions are pertinent to note, as advocacy for communities (where one demonstrates leadership) is an acknowledged part of public health. Also of significance is the omission, in both the HPCSA regulations and the golden threads, of being a reflective practitioner. Reflection is becoming a critical component in medical education (Driessen, van Trätwijk & Dornan, 2008:827).

A significant problem that plagues the horizontal and vertical integration of the golden threads is primarily that of generating evidence to display the stated outcomes of the golden threads. Currently some informal and formal assessments such as oral presentations and written reports exist. However, attempts at longitudinal assessment of a single thread over the span of the curriculum have proved logistically difficult. As a result

the current practice is the inclusion of any formal assessment of the golden threads in the mark that is generated for the block/special activity. For example, ‘understanding of health systems’ is assessed in a fifth-year block and the mark generated contributes 20% to the overall mark for the block GNK 582 entitled ‘Health and Health Systems’.

A potential assessment strategy was the use of a longitudinal electronic portfolio. This proved technically difficult in that the University’s electronic classroom is based on an operating system that annually removes the content. Another obstacle to the use of portfolios is where the responsibility of the assessment of such a portfolio should rest and to which block/special activity this mark should contribute, as the portfolio is a reflection of many years’ worth of learning and no unique subject code exists. The use of a longitudinal portfolio was therefore never implemented.

2.4.7 Summary of the landscape of public health and public health education

The inclusion of public health in the undergraduate medical curriculum cannot be discussed without acknowledgment of the source of public health education in general, with its dual purpose of knowledge acquisition and leadership development. In South Africa it is particularly important to be cognisant of the roots of public health education that formed from existing departments of community medicine that were part of faculties of medicine.

The relative isolation of public health in the medical curriculum is partly because of the population-based focus, in sharp contrast to the individual-based focus of clinical medicine and because public health professionals come from a wide variety of professional backgrounds.

The relatively recent arrival of the study field in South Africa contributes to the vague understanding of what should be included. The persistent underlying philosophical differences in the field as well as the broadness of the specialties within public health contribute to the vagueness.

In addition the public health curriculum at the University of Pretoria has a fragmented structure that is stretched over multiple years and included at irregular intervals, which

places it at risk of being excluded when the more powerful clinical curriculum needs more time. Of primary concern is that if public health is to challenge students to make sense of the 'big picture' (Woodward, 1994:390) then the thread structure holds an inherent risk of promulgating a reductionist and linear approach. In the absence of a purposeful framework that can assist students to 'join the dots' the minor, but important, messages of public health are lost.

Furthermore the current golden thread does not reflect the five core specialties or disciplines of public health but only focuses on one specialty – epidemiology – even though the actual facilitation of learning does extend into some of the other specialty areas.

The golden thread is not assessed *per se*. Rather, any assessment is included in the overall block/special activity assessment. This assessment strategy encourages the disappearance of the subject and as a consequence reduces a minor, but important subject, to a non-existent one.

The overarching argument is that this particular golden thread is the single opportunity to include public health in the undergraduate medical curriculum and that the linear, longitudinal, unsupported structure contributes to the subject being tolerated at best but rarely valued by medical students.

Of particular interest is the absence of any mention of leadership in any of the golden threads or the professional code. This absence is a concern in the light of the widening rift between medical practitioners and the community that they are supposed to be serving.

These internal limitations in our curriculum highlight the fact that public health remains a minor, but essential, component that develops the critical population perspective in medicine.

Ultimately it is public health that can counterbalance the reductionist approach in medicine by providing the 'big picture', the very same picture that future doctors will need to be aware of in their leadership roles in the planning and provision of health care. It is this professional group that will in future be educators of future doctors, review proposals for

funding, head philanthropic organisations, serve as medical diplomats, serve on numerous boards including editorial boards, be programme directors, be ministers of health – in essence, be leaders.

It is not the purpose of this conceptual framework to debate public health and public health education in detail but to provide an introduction of the educational context of medical students.

2.5 The internal landscape of the medical student

Every medical educator is aware of a new and different kind of medical student, one described as having increased sophistication and world experience (Anderson & Kanter, 2010:S6). This millennial generation is a digital generation that values information on the internet, can process discontinuous information and is accustomed to near-constant interaction and communication (Sánchez, Salinas, Contreras & Meyer, 2011:543).

Three particular issues inform any facilitation of learning in the undergraduate medical curriculum – the first is the central role of role modelling – a practice that is sorely lacking in public health currently; the second is the phenomenon of progressive burnout of students; and finally the sense of agency that is under progressive constraint due to the prolonged exposure in a six-year learning programme.

All of these issues are not only pertinent to the real-world experience of the students but are equally important to medical educators and clinical practitioners from an educational and personal perspective.

2.5.1 Role modelling in medicine

“To be recognised as physicians, medical students must be socialized into the ‘habitus’ or ways of perceiving, behaving and communication characteristic of their profession” (Schryer, Lingard, Spafford & Garwood, 2003:63). In medicine, this occurs through very influential role modelling.

Role models in the context of professionalism are “individuals admired for their ways of being and acting as professionals” (Côté & Leclere, 2000:1117). The iconic role model figure in medicine is Sir William Osler who is a beloved 19th-century classic generalist clinician/facilitator of learning/scholar responsible for the shift from traditional didactic learning to small group learning at the bedside and clinics (Geyman, 1983:885). Central to his facilitation of learning was his emphasis on integrating scholarship with patient care as well as the art and science of medicine. He had three basic concerns regarding his educational practice (Harvey, as cited in Geyman, 1983:885-6):

- You are always a student;
- You must treat the person as well as the disease; and
- You must consider the poor beyond all others.

Both history and literature provide us with many other examples of role models in medicine and it is generally accepted that medical students choose role models based ostensibly on the degree to which they admire and trust the medical educator/practitioner. This choice can either be made consciously or unconsciously (Skeff & Mutha, 1998:2015).

The use of role modelling as a powerful strategy for facilitating learning so that students may master the knowledge, attitudes, skills and values of the medical profession has been well-described by Cruess, Cruess and Steinert (2008:718-21) and Kenny, Mann and MacLeod (2003:1203-10), but the effect on medical students is as likely to be negative as positive. The emphasis of clinical learning by a medical educator/practitioner lends itself to substantial exposure to a wide range of potential role models for medical students upon whom they can base their character formation. A study by Wright, Kern, Kolodner, Howard and Bracanti (1998:1987) highlights that in less than half of the instances clinical facilitators of learning were considered to be positive role models.

Cruess *et al.* (2008:718) summarise the characteristics of role models from the literature and divide them into three categories:

- Clinical competence;
- Teaching skills; and
- Personal qualities.

Clinical competence is described as that which is central to medicine and “encompasses knowledge and skills, communication with patients and staff, and sound clinical reasoning and decision making” (Cruess *et al.*, 2008:718).

With regard to teaching skills Cruess *et al.* (2008) only refer here to the teaching of clinical competence as the learning outcome. What is uncertain is why only this outcome is highlighted and why the narrow focus of teaching instead of facilitating learning. One possibility is that students recognise this outcome, and value it above others, another possibility is that clinical competence is valued by medical educators above the other learning outcomes.

Personal qualities include “attributes that promote healing, such as compassion, honesty, and integrity...effective interpersonal relationships, enthusiasm for practice and teaching, and an uncompromising quest for excellence” (Cruess *et al.*, 2008:718). These qualities align reasonably well with those described in the Charter for Professionalism at the University of Pretoria (Table 2-5). An interesting emphasis that is lacking in the Charter is that of an enthusiasm for practice and facilitation of learning. The Charter lays emphasis on respect, demeanour and punctuality – attributes that have more to do with conforming than performing.

Telling omissions in the list of characteristics of role models that Cruess *et al.* (2008) have extracted from the literature are those of scholarship, mentorship and leadership. The reality is that medical students are taught by other doctors who often spend the majority of their time involved with hands-on patient care. In addition, those who are appointed to facilitate learning very seldom have any educational qualification. It is not surprising therefore that scholarship has not been described in the literature as a common characteristic among identified role models.

Whereas role modelling is usually an unintentional activity, mentorship is not. Mentorship is an explicit two-way reciprocal relationship – and herein lies the problem at an undergraduate level. The large classes of medical students, who are constantly moving between classes and wards versus the relatively small numbers of faculty who have concurrent patient responsibilities, explain this omission in the literature. Paice, Heard and Moss (2002:709) promote the shift from serendipitous role modelling to intentional

mentorship of students as part of transforming the medical profession from being paternalistic to being self-aware, but are silent on how this shift might be best achieved.

Lastly, the reality of the clinical curriculum is that it is a patient-based system. Within this system students are seldom afforded the opportunity to see any leadership in action. Leadership activities that academic and clinical staff are engaged in, such as service on boards, are well beyond what students can see. The notable advantage of the public health curriculum is that it can provide students with the opportunity to see leadership in action, as there are prominent historical and contemporary figures who have taken a stand against unjust policies and practices that affect vulnerable communities.

Cruess *et al.* (2008:719) highlight role modelling as a powerful strategy to facilitate learning. Learning from role models occurs through a complex mixture of conscious and unconscious activities and occurs through observation and reflection. The process of role modelling as experienced by the student is described by Paice *et al.* (2002:707-10) in Figure 2.2.

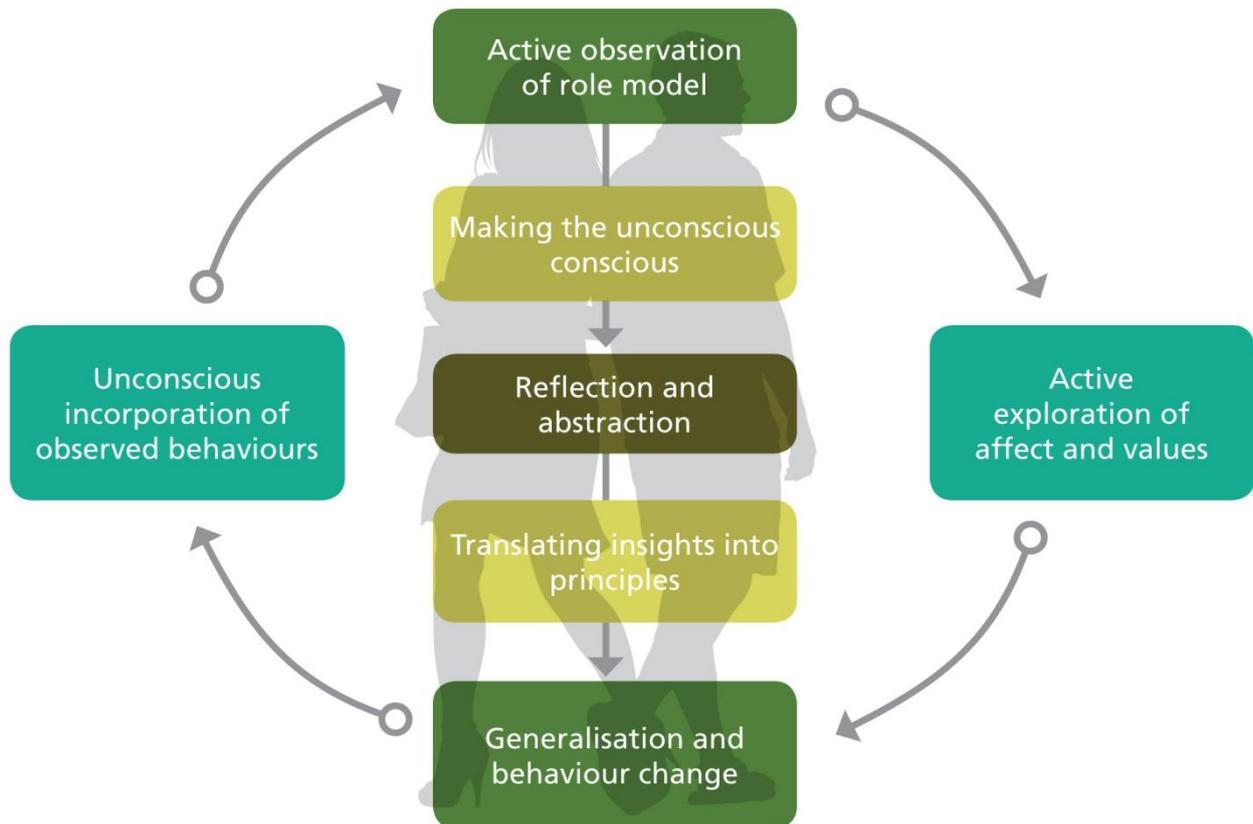


Figure 2-2: The process of role modelling (Paice *et al.*, as cited in Cruess *et al.*, 2008:719)

Several learning processes were identified by Lempp and Seale as part of the enculturation process in undergraduate medical education: loss of idealism, adoption of a 'ritualised' professional identity, emotional neutralisation, change of ethical integrity, acceptance of hierarchy, and the learning of less formal aspects of 'good doctoring' (Lempp & Seale, 2004:770). The same paper reported on students' perceptions of the facilitation of their learning and highlighted four key themes (2004:771):

- Personal encouragement by role models;
- Haphazard teaching (or facilitation of learning);
- Importance of hierarchy through humiliation; and
- Getting ahead by being competitive.

A longitudinal exposure to negative role modelling and/or the absence of positive role modelling can result in a corrosive effect that can be seen in the cynicism and burnout of medical students.

Riegelman (1991:254) describes that it is public health – in particular preventative medicine – that is adversely affected by the absence of role models and results in what he describes as 'student myopia' or the inability to see the 'big picture'.

2.5.2 Burnout amongst medical students

Burnout is defined as "a syndrome of emotional exhaustion and cynicism that occurs frequently among individuals who do people work of some kind. A key aspect of the burnout syndrome is increased feelings of emotional exhaustion" (Maslach & Jackson, as cited in Zellmer, 2004-2005:20). According to Maslach, burnout has three dimensions: emotional exhaustion (feeling unable to give of oneself psychologically), depersonalisation, (feeling cynical and uncaring toward clients), and reduced personal accomplishment, which results in dissatisfaction with one's work (Lloyd, Kind & Chenoweth, as cited in Zellmar, 2004-2005:20).

It is Maslach's view that it is factors in the job environment (such as autonomy, reward, workload, relationship with others, fairness, and alignment of values with actions) that cause burnout and not individual characteristics (Dyrbye, Thomas, Harper, Massie, Power, Eacker, Szydlo, Novotny, Sloan & Shanafelt, 2009:275).

Studies have shown that burnout is common (up to 50%) among medical students (Dyrbye, *et al.*, 2009:275). A multi-centre study in the USA in 2006 examined the learning environment and workplace characteristics, as well as the influence of positive or negative life events on burnout. An important finding was that clinical workload has no effect on burnout. This finding supported previous studies that reported that students expect to work hard “provided that this work can be performed in an organised and supportive environment that promotes their professional development” (Dyrbye *et al.*, 2009:280). A critical finding in this study was that although personal characteristics, life events and learning environment are independently related to student burnout, satisfaction with the learning environment appears to be the pivotal link with burnout. In the preclinical years dissatisfaction with the learning environment and the perceived level of support was associated the strongest with burnout, while at the clinical level it was the overall learning environment, clerkship organisation and the presence of a cynical resident (Dyrbye *et al.*, 2009:280).

Positive life events were linked to less overall burnout and no association was found between one or more negative life events and the frequency of burnout. It is the modifiable (and therefore preventable) aspects of the learning environment that are linked to student burnout.

Besides the personal negative effects of burnout, burnout is also associated with an increased likelihood of dropping out of medical school. A multi-institutional study in the USA reported that 11% of students have serious thoughts of dropping out of medicine each year (Dyrbye, Thomas, Power, Durning, Moutier, Massie, Harper, Eacker, Szydlo, Sloan & Shanafelt, 2010:98). This finding suggests that all efforts to increase the numbers of graduates to meet the shortage of doctors in South Africa are under serious threat unless parallel efforts to address the root causes of burnout are addressed.

The Department of Family Medicine, in the School of Medicine at the University of Pretoria, conducted a study in 2007 (Van Rooyen, 2008a:516) to determine the prevalence of depression and burnout amongst medical students and to identify the perceived reasons for these occurrences. The study was prompted by the observation by faculty members that students lose their motivation and positive attitudes over the period of the six-year programme. The study was cross-sectional in design as it measured all the

students at a single point in time. The survey included a section on the demographic detail of students, the Beck Depression Inventory (BDI); the Maslach Burnout Inventory (MBI) and a stressor questionnaire that was based on the first-phase focus groups discussions (done amongst pre-clinical and clinical students).

The response rate of the voluntary anonymous survey was 38.2% (480/1255).

A key finding was the progression of burnout associated with the year of study. This finding was statistically significant $\chi^2 = 43.90$, $p < 0.0001$.

Table 2-6: Burnout and depression amongst UP medical students (2007)

Year of study	Burnout present	95% CI	Depression present (mild, moderate or severe)	95% CI
1	22.0% (9/41)	0.11 - 0.38	41.7% (15/36)	0.26 – 0.59
2	41.5% (27/65)	0.29 - 0.54	47.5% (29/61)	0.35 – 0.61
3	48.6% (36/74)	0.37 – 0.61	47.1% (33/70)	0.35 – 0.59
4	61.4% (51/83)	0.50 – 0.72	60.1% (48/79)	0.49 – 0.72
5	67.0% (67/100)	0.57 – 0.76	41.5% (39/65)	0.31 – 0.52
6	77.0% (50/65)	0.65 – 0.87	50.1% (33/65)	0.38 – 0.63
Total	56% (240/428)		48.6% (197/405)	

(Van Rooyen, 2008b)

No difference was found between language groups. Those who completed the stressor questionnaire identified the following three factors as contributing most to their stress: difficulty in remembering previously learned theory; a desire to obtain the minimum score necessary to be exempt from writing an examination; and the imperative to perform well in all tests (Van Rooyen, 2008a:516). Other stressors identified were the heavy theoretical workload throughout the programme; long working hours in clinical rotations with little time to sleep; little time for socialising and recreation and feelings of guilt when not studying (Van Rooyen, 2008a:516).

The important link between burnout and a sense of agency is that not only does a sense of personal agency help to balance the stressors that can lead to burnout but also that the organisational factors that contribute to burnout – although beyond the scope of students – are not beyond the possible agency of lecturers.

2.5.3 Agency

Agency is the “individual ability to act, to choose or to decide” (Schryer *et al.*, 2003:64) and needs to be discussed together with an accompanying concept of ‘structure’ because whereas “agency refers to the capacity for freedom of action in the light of or despite social structures; structure refers to the social forces and constraints that affect so much of our social lives” (Schryer *et al.*, 2003:64).

Important post-structuralists such as Smith and Foucault have rejected the possibility of a totally free agent (Schryer *et al.*, 2003:64). The concept of self is that of the ‘I’ as the free agent and is based on a Western philosophy that epitomises the body/mind dichotomy (Schryer *et al.*, 2003:64). Smith holds that the ‘I’ as a totally free agent is a dangerous mythic construct as it shields the normative assumptions of “race, gender, sexuality and class identification” and her example is that of the voice of the free agent in the traditional autobiography which is white, male and upper class (Smith, as cited in Schryer *et al.*, 2003:65). The notion that social structures determine all forms of human action is also challenged. Two theories, structuration theory and activity theory, provide ways to understand the interactions of agents and their social contexts. The inclusion of these two theories does not preclude the existence or value of other theories of agency but as my inquiry is from my Western perspective, specifically within the field of medical education that is in turn dominated by a Western allopathic tradition these two theories are of illustrative use. Therefore the major theorists and their implications for this research will be dealt with briefly.

- *Structuration theory*

The major theorists in this field are Giddens and Bourdieu. These theorists see agents and social structures as “existing in a dialectical relationship and focus on the product of that relationship – social practices” (Schryer *et al.*, 2003:65). A dialectical relationship can be characterised as one that is open and fluid and contains contradictory elements (Whitehead & McNiff, 2006:31).

Pertinent to this study is that social structures, such as workplace practices, shape the behaviour of workplace participants (Giddens, 1984:19). “It is by acting as an agent, using

the organized practices, associated with an organization that one becomes both socialized and an agent capable of intervening in the social world” (Schryer *et al.*, 2003:65). Giddens (1984:25) points out that these social practices act both as a resource and a constraint and can only exist if the users reproduce them. Typically these social practices are perpetuated by strong role models who influence students who in time are role models themselves.

Bourdieu views the social and the individual as inextricably linked and like Giddens sees social structures as “powerful, already structured structures that affect social agents” (Schryer *et al.*, 2003:65). Bourdieu particularly draws attention to social structures and agency in ways that emphasise the workings of power in organisational contexts. He views social structures as fields and agency as habitus (Schryer *et al.*, 2003:66).

‘Field’ is a sphere of play that is a “structured space of positions in which the positions and their interrelations are determined by the distributions of different kinds of resources or capital” (Bourdieu & Wacquant, as cited in Schryer *et al.*, 2003:66). These forms of capital are cultural (knowledge), economic (money), social (personal connections) or symbolic (recognition) (Bourdieu & Wacquant, as cited in Schryer *et al.*, 2003:66). It is within these spheres of play or fields that agents try to acquire these different forms of capital so as to advance their own position and also to advance the position of their own fields. In my context this can be related to the sphere of medical education that struggles to keep the sphere of public health education outside its own field – to the point of including the word ‘medical’ in the terminology describing public health in the regulations that control the education of medical students.

‘Habitus’ or ‘agency’ refers to individual socialisation that is an outflow from preceding generations and is an ongoing structuring process. Students acquire ways of seeing, doing, for example, and by so doing acquire cultural and symbolic power by their choices, which are limited by the necessity of adjusting their practice to meet the expectations of their professors. This socialisation shapes their future actions (or habitus) as educators of future doctors. “Agents are the activators of social structures and they operate through strategies and practices” (Schryer *et al.*, 2003:66). This theory provides considerable insight into the perpetuation of negative role modelling over successive generations of doctors.

- *Activity theory*

The work of Vygotsky (1978) provides further insights to “explain the dialectical interaction of agents and their social structures” (Vygotsky, as cited in Schryer *et al.*, 2003:67). This theory countermands the concepts that agents are at the mercy of the environment or that they are self-contained entities. Vygotsky’s (1978) work describes agents using tools, such as language, in purposeful and goal-directed activities. Agents internalise the values, practices and beliefs associated with their world through the use of these mediating tools (Schryer *et al.*, 2003:67). It is in this process of becoming more experienced that agents can affect their social context or modify their mediating tools.

Activity theory is key in this research, as medical students can internalise the values and practices of public health while being involved in purposeful activities. This dialectical interaction can be facilitated by using the mediating tool of public health interactions/education that would lead to the graduates’ own ability to affect future social contexts. Numerous examples exist of medical practitioners who have used their powerful positions to affect the social contexts in the area of public health. In extreme cases this leadership takes the form of activism that challenges things such as health inequities and government policy.

Leont’ev (1978) makes the following refinement to Vygotsky’s theory by recognising that activity is a collective phenomenon or system that is divided into three levels (Leont’ev, as cited in Schryer *et al.*, 2003:67). For example, the top level is the *total activity system* (or the study of medicine). On the second level are the *actions* that are purposeful (to facilitate learning about public health) but still form part of the larger system. Finally, at the level of *operations*, agents use tools such as public health concepts, lectures and field experiences.

2.5.4 Summary of the internal landscape of the medical student

Positive role modelling clearly holds a pivotal possibility for public health in that this is an under-utilised, but recognised and respected way of facilitating learning among medical students. It is also within this role modelling that students can be exposed to examples of public health leadership that embody the values inherent in the discipline. The ‘big picture’

of public health holds an additional advantage in this area as it balances the immediate short-term focus of passing the current module – a pre-occupation of medical students – with a longer-term perspective of health care.

Negative role modelling on the other hand has a corrosive effect and implicit expectations such as working overtime and competitiveness can lead to burnout and loss of sense of agency.

In order to secure future leaders in public health, we need not only to invite students to learn all the key aspects of public health such as described by Stone (2000) in Table 2-2, but also to learn the cardinal values of relevance, quality, cost effectiveness and equity.

All educational endeavours have to be structured purposively and take into account those factors that contribute to burnout. The paper by Lempp and Seale (2004:771) has cautionary tales that public health can take advantage of simply by avoiding the same mistakes: haphazard facilitation of learning, hierarchy through humiliation, and encouraging getting ahead by being competitive. The values of cooperation rather than competition and respect for all that are inherent in public health clearly have a role to play provided that the circumstances in which these values can flourish and be demonstrated can be created.

The agency role of medical practitioners is highlighted in, amongst others, the work of Frenk *et al.* (2010:1946) and Berwick and Finkelstein (2010:S63):

We think that the anxiety, demoralization, and sense of loss of control that afflict all too many health care practitioners today directly come not from finding themselves to be participants in systems of care, but rather from finding themselves lacking the skills and knowledge to thrive as effective, proud, and well-orientated agents of change in those systems (Berwick & Finkelstein, 2010:S63).

Frenk *et al.* conceptualise agency as part of professional development and citizenship and suggest that a comprehensive instructional design should include social sciences, including the notion of social justice, and humanities (Frenk *et al.*, 2010:1946).

A seldom-voiced opinion is one that pushes agency to the more radical point of activism:

We should enlist some medical students as agents of change, committed to designing a system of care that is equitable, cost-effective, prevention-orientated, universal, and thus moral...this rich and activist undergraduate experience should lead to graduate medical education that prepares these students for leadership (Federmann, as cited in Maeshiro, 2008:320).

If agency is a prerequisite for leadership then the current shortfall of leadership by medical practitioners in health systems is to be expected. A curriculum that does not promote agency does not promote leadership.

Agency as a moral endeavour and a prerequisite for leadership development is not only applicable to medical students but also in my own practice. Agency (or more accurately the right to exercise my agency⁶) is a key value – for myself as practitioner – that frames this inquiry.

2.6 Public health values and personal values

The discussion of values is central to this research as both public health and educational practice are value-laden activities. Furthermore, it is against this landscape of public health values that my professional – including personal – values stand in relief.

2.6.1 Public health values

Public health has as a central philosophy the concept of Health for All – outlined as the goal at the first conference on primary health care held in Alma Ata by the WHO in 1978. Implicit in the goal of health for all are the values of relevance, quality, cost effectiveness and equity (Boelen, 1993:2-3).

⁶ My use of 'agency' as a value in the rest of the document implies the right to exercise my agency.

Boelen (1993:4) uses an analogy of a compass with one of each of the four values as its extremities to illustrate an ideal health care system that attempts to meet the needs of individuals and populations at the intersection of the four core values.

The implicit choices that exist in choosing and maintaining a direction (or value) is not lost on Boelen (1993:5) and he underlines the necessity of not choosing one value at the expense of others, even though tensions exist. Rather, it is necessary to find the “technically appropriate and socially acceptable compromises among all values at the same time” (Boelen, 1993:5).

Boelen (1993:2) urges all stakeholders from policy-makers, consumers and educators to:

re-examine their position on the health chessboard and consider readjusting their expectations to ensure that these values are upheld and people’s health needs are better met. It is in this context that the future role of health professionals, and in particular, the medical doctor, should be thought of.

Boelen’s (1993) work at the WHO’s Programme on Educational Development of Human Resources for Health resulted in a seminal text on the concept of a ‘five-star doctor’. This concept is proposed as the ideal profile of a doctor who has a range of aptitudes and who can provide the range of services to meet the four cardinal values of public health: relevance, quality, cost effectiveness and equity in health. Common public health concepts have been highlighted in the text in the table.

Table 2-7: Attributes of the ‘five-star doctor’ (Boelen, 1993:6-7)

Attribute	Description
Care provider	High quality individual patient treatment that also takes into account the total needs of the patient. These needs are physical, mental and social .
Decision-maker	Decision making that can be justified in terms of efficacy and cost. This implies the most appropriate choice for a setting and that the limited health resources are to be shared fairly to the benefit of every individual in the community .
Communicator	Communication that can persuade individuals, families and the communities in their charge to become partners in their pursuit of health and to adopt healthy lifestyles.

Attribute	Description
Community leader	Understanding the determinants of health inherent in the physical and social environment and by appreciation of the health risk, the doctor will not only treat the patient but take a positive interest in the community health activities for the benefit of large numbers of people .
Manager	Managerial skills that will enable the exchange of information in order to make better decisions, to work within a managerial team in association with other partners for health and social development. Integration of old and new ways of dispensing care that has to be integrated with the totality of health and social services, for the individual or for the community .

Although there can be little disagreement with these attributes identified by Boelen (1993), it is also clear that these are all outward-focusing altruistic attributes that doctors should employ in their service to others. No mention is made of the inward-focusing attributes, such as scholarship and reflection, which can serve as renewal of purpose. Scholarship and reflection are core attributes that help balance the distressing nature of the work that, in South Africa, is also performed under difficult conditions.

Boelen (1993:9) emphasises the need for educational approaches that prepare medical graduates for these roles and the accompanying responsibilities. He poses the following questions that medical schools should concern themselves with if they wish to respond to the needs of society in an accountable way (Boelen, 1993:9):

- Is there evidence that their graduates optimally respond to priority health concerns?
- Do research results have a positive impact on the way health care services are delivered and address health priorities?
- Do delivered health care services optimally respond to needs?

Only one of the attributes of the 'five-star doctor' – care provider – is within the sole domain of medicine. All of the other four attributes are actually leadership attributes, with the specific inclusion of a community (public health) focus.

2.6.2 Personal ontological values

The *Greenwood Dictionary of Education* defines ontology as the branch of metaphysics concerned with the study of being and existence (Collins & O'Brien, 2011:250). Central to any ontological debate is the positioning of self and this in turn influences the choice of research approach. This positioning is key, especially in practitioner research (Bullough & Pinnegar, 2004:316). As someone who considers herself part of other people's lives and *vice versa* it is appropriate for me to adopt an insider, participative approach that would allow me to both describe and explain the mutual relationships of influence (Whitehead & McNiff, 2006:23). Although there are several personal values that are important in my educational practice there are two that are currently under pressure: care and agency.

2.6.3 Personal epistemological values

Epistemology is the branch of philosophy that is concerned with what counts as knowledge, with 'knowledge' defined as that which is absolutely true (Collins & O'Brien, 2011:125). Lincoln (2001:128) refers to epistemology as a "frame for judging what may be known about the world, and the relationship of the knower to that which might be known".

My epistemological stance is that knowledge is not a separate entity that can be studied; rather, it is something that is created with others. This theory of social constructivism originates from the work of Vygotsky and construction of personal knowledge always occurs through the intersection with people, context, culture and tools (Hansman, 2001:44). Social constructivism is one of several strands of constructivism that believe "that learning is a process of constructing meaning rather than receiving knowledge" (Collins & O'Brien, 2011:75).

As one who believes that knowledge is something that is co-created and not a separate entity that exists separate from human experience I can hold to the belief described by Bourdieu (1984:2):

that all knowledge, and in particular all knowledge of the social world, is an act of construction implementing schemes of thought and expression, and that between conditions of existence and practices or representations there

intervenes the structuring activity of the agents, who, far from reacting mechanically to mechanical stimulations, respond to the invitations or threats of the world whose meaning they have helped to produce.

The first point of particular emphasis is the value that is placed on the internal embodied knowledge that forms the departure for self-study research in the facilitation of learning. Embodied knowledge is the tacit knowledge that people inherently possess, which through practice becomes the basis for new theories – including educational theory.

The second point of interest for self-study research is the emphasis that Bourdieu places on the function of knowledge as a basis for practice and not simply to exist as a separate entity:

In defining myself as being in living interaction with others and objects and in generating knowledge with others, it is possible to extrapolate this position to answer the question 'to what end?' The purpose will always be a social purpose – that which one wishes to achieve in the social world and the reasons for this. These social purposes are ways in which one might improve one's own processes of interaction and knowledge creation (Whitehead & McNiff, 2006:23-24).

Social constructivism within the academic world and action research are symmetrical in theory and practice in six ways (Lincoln, 2001:126-128):

- Mandates for action;
- The press for social justice;
- Shifting relationships between researcher and researched;
- Relationships between academics and the academies;
- Revised and expanded ethical codes; and
- Expanded epistemologies for mutual learning.

2.6.4 Personal methodological values

Methodology is described as the application of principles, practices and procedures to a problem, project, course of study or given discipline (Collins & O'Brien, 2011:220).

As one who positions herself as a participant in the world, it is an impossibility that definitive answers or theories are 'out there', separate from us, waiting to be discovered

and described. A methodological value of this research is that only through interaction with others can new meaning be created and that the validity of this new meaning is tested against the critiques of my own colleagues and others. This process of co-creation of meaning is congruent with a social constructivist philosophy and can be described as a living process that requires openness to new possibilities and one that resists closure (Whitehead & McNiff, 2006:86). Lincoln (2001:130) highlights a minor difference in methodologies: constructivist inquiry has an explicit methodological basis (qualitative methods) compared to action research that employs both quantitative and qualitative methods based on participant choice or preference.

2.6.5 Summary of public health values and personal values

The values of the professional contexts in which I work – public health and education – provide the framework in which I practise. My professional values are those of care and agency. In other words: the right to be concerned about my practice, the self-determination to be able to do something about it, and finally the freedom to involve others in caring.

It is particularly the value of agency that forms the impetus for action and research, as it is this value that is being constrained in my practice: the opportunity to work with others to engage in authentic learning and development of a professionally significant ‘big picture’ of public health for ourselves and our medical students.

The values of public health and my own ontological, epistemological and methodological values have been outlined in this section. The constraint of my professionally held value of agency when faced with the epistemological authority *status quo* as a non-medical professional has to be acknowledged within the existing power relations of not only my own school, but also that of the School of Medicine.

2.7 Conclusion

The early divergence of public health from medicine has resulted in a conceptual distance between the two disciplines. In addition, the discipline of public health is characterised by an early fundamental divide between science and practice. This fundamental divide

contributes to the ambiguous and multiple understandings of public health, as well as what should/could be taught in the medical curriculum.

Public health is rooted in medicine and therefore public health education is rooted in medical education. Medical education has weathered several generations of reforms, from an apprenticeship model to a science-based curriculum, later to a competency-focused curriculum and the current climate of a systems-based curriculum. These shifts have imperceptibly moved medicine from a sure-footed scientific simplicity to a more uncomfortable position that is characterised by complexity, interdependence and uncertainty.

What is certain, however, is the HPCSA's decision to include public health in the medical curriculum. Rather unhelpfully no clear direction is provided and South African medical schools are left to feel for the outline of the curriculum and optimal strategies primarily in what is described in the literature from beyond our borders.

The literature for including public health in the medical curriculum depicts a field littered with various levels of strategies. But what is useful for an urban American medical school that has graduate-level students is not necessarily of any use to an African institution.

At the University of Pretoria the decision to include public health as a golden thread over the duration of the curriculum poses the specific challenge of fragmentation. The separation of the School of Health Systems and Public Health from the School of Medicine adds another layer of difficulty.

Multiple powerful forces are at work in this educational landscape. The first are the students themselves who are central to the activities of medical education, but who are themselves not merely raw material to be shaped. Students face competing demands for their time, are themselves struggling to forge a professional identity, and are consumed by a natural desire to survive. Activities and curricular content that do not clearly and directly assist them in these goals of independence are naturally resisted. The current reform for interdependence and agency beyond the close patient relationship is a force that brings with it ambiguity and complexity.

In a complex and uncertain environment it is values that provide direction. The compass point values of relevance, quality, cost effectiveness and equity in public health provide us with a tool to make decisions that take into account the needs of the population as well as the needs of the patient. My educational values provide direction for my practice – but values can be denied in practice. My professional landscape and the constraints described here are extended to include my personal landscape in Chapter 3 and it is the value of agency that has informed the choice of a theoretical framework.

3 CHAPTER 3: My personal landscape

3.1 Introduction

In Chapter 2 I shared my professional landscape in the form of a complex conceptual framework. Chapter 2 ended with the introduction of values, including personal values. In this chapter I elaborate further on my personal landscape and introduce myself as a living theory researcher within a framework of educational theories.

The structure of the chapter takes a broad to narrow approach, acknowledging the broad categories of educational theories, introducing living theory and sharing South African examples of practitioner research as living theory. The chapter culminates in the point of interest for this chapter – an introduction to self as a practitioner researcher and an entry point to the research itself.

3.1.1 Educational theories

Whitehead and McNiff (2006) describe theories as knowledge claims or explanations that people use to describe what they know to be true. As there are different kinds of knowledge, there are also different ways in which people organise their thinking that help them to make sense of their experiences (Whitehead & McNiff, 2006:29).

Key to my choice is the acknowledgment of the kinds of theories that have their own content and form and which are informed by their own logics and values (Whitehead & McNiff, 2006:30). As I have chosen one particular kind of theory – living theory – I will outline the other two (propositional and dialectical) described by Whitehead and McNiff, (2006:30-2) briefly as part of substantiating the rationale for my own choice.

3.1.1.1 Propositional theories

Whitehead and McNiff (2006:30) describe these as theories that aim to achieve certainty about the way things are. These theories are often stated as closed statements that only allow an 'either-or' logic. A major criticism of these theories is that human living cannot be understood within these prescriptive terms. Propositional theory can be traced back to

Aristotle, who maintained that any contradiction in thinking had to be eliminated and, as a result, his law of contradiction holds that “two mutually exclusive statements cannot be true simultaneously” (Whitehead & McNiff, 2006:31). This law has since been extended to include the elimination of contradiction from forms of expression. Major opponents of this form of theory, Marcuse (1964) and Ilyenkov (1977) base their arguments on the necessity of linking theory to real-life experience.

3.1.1.2 Dialectical theories

The *Greenwood Dictionary of Education* (Collins & O'Brien, 2011:106) describes a dialectical inquiry as a method of interaction “showing opposite ideas or tendencies and seeking resolution through dialogue”. In this way new possibilities arise as a synthesis of the original ideas or tendencies. These theories assume that statements are not absolute but rather responses to questions that in turn are open to modification. This form of theory can be traced back to the work of Plato, who believed that it is possible to hold the “one and the many together at the same time” (Whitehead & McNiff, 2006:31). The implication is that even when we break things down into their separate parts we can still hold things together under a general idea. Ilyenkov (as cited in Whitehead & McNiff, 2006:32) highlighted the contradictions experienced in real-life contexts and that this was important to take into account when generating theory.

3.1.1.3 Living theory

This form of theory was developed by Whitehead (Whitehead & McNiff, 2006:34) as a response to the problems inherent in trying to theorise the idea of the contradictory nature of life:

As we practise, we observe what we do and reflect on it. We make sense of what we are doing through researching it. We gather data and generate evidence to support our claims that we know what we are doing and why we are doing it (our theories of practice), and we test these knowledge claims for their validity through the critical feedback of others. These theories are our living theories (Whitehead & McNiff, 2006:32).

Living theory resonates with my inherent desire to transform my practice and generate educational theory from this practice in the undergraduate medical curriculum. As my practice is in public health and education – both value-laden environments – it is plain that my practice should allow for the emergence and fulfilment of my own professional values. It is the denial by my peers of these values in practice that has resulted in the desire to try alternative ways to change the situation described in Section 3.2.4.

I am the only person over whom I have direct influence in terms of learning at an intra-personal level. I am also central in terms of taking responsibility for my own learning and the explanations of my own living theories. It is this positioning of ‘I’ that leads to the creation of *living* educational theory. In order to align my own ontological stance of inclusionality it would be more correct to refer to the ‘our/my’ power to transform.

As there are aspects of practice in which my value of agency is denied – or stated differently – I experience parts of myself as a living contradiction. Whitehead suggests that this tension:

stimulates the imagination to generate a possible future in action plans in which the values are lived more fully in practice. In action reflection cycles motivated by values, individuals act to realise their values and gather data to enable an evidence-based judgement to be made on the influences of the actions (Whitehead, 2008:5).

The impetus for this research is the desire to transform my practice and to align my practice to my personal and educational values, as it is these values that provide meaning and purpose as a practitioner and a person.

3.1.1.4 Practitioner research

Noffke (1997:317) views this form of action research as “research that is undertaken by educational practitioners because they believe by so doing they can make better decisions and engage in better action”.

The action research process provides insights and experiences that transform practice and the accompanying action reflection cycles provides for the emergence of values,

some of which may be denied in practice. Generation of theory occurs on a personal level as well as within communities of practice.

Practitioners might consider themselves as competent practitioners but seldom consider themselves as able theorists. Action research allows me, the practitioner, to theorise my practice as the practitioner researcher focuses on not only the 'what' but also on the 'how' and 'why'. Therefore, practitioner research has a dual focus: transforming practice and knowledge creation through generating and testing theory (Whitehead, 2008:2).

By presenting these explanations of our enhanced understanding as living theories for public critical scrutiny and debate, practitioners contribute to the body of practitioner research following a constructivist approach. Practitioner research allows for cooperative work and research among both independent and interdependent colleagues to make original contributions to their own and others' knowledge as part of a community of practice. Wenger and Snyder (2000:140) describe these communities of practice as organic, spontaneous and informal groups that have a primary objective of knowledge creation.

Although examples in the health care sciences in South Africa are scarce, at least one other practitioner has used a self-study living theory approach in her doctoral studies to theorise her practice (Naidoo, 2005). Wood, Morar and Mostert (2007:67-80) have similarly motivated for the use of self-study practitioner inquiry at the Nelson Mandela Metropolitan University to realise the institutional values that promote transformation.

The work of Beyliefeld (2011) and Wood (2011) has argued for the use of action research to transform curricula within higher education in South Africa. Both authors highlight the major strength of action research – that of collaboration, deepening personal understanding and embracing complexity as an unavoidable aspect of educational practice. The work of Beyliefeld (2011) is of particular interest as she explains changes made in a medical curriculum in South Africa and, specifically, in the inclusion and assessment of general skills, typically undervalued within an environment where technical skills are understandably paramount.

3.2 CONTEXT FRAMING

My personal context is delineated to answer two implied questions. Why this research is of interest to me and why I am in a position to do something about my practice in the facilitation of learning about public health in our medical curriculum. While asking these questions I am aware of the frames that colour my view of reality:

Framing is not just an unconscious process or viewing situations through the frames we have gathered in our lives to date; it is also an active process of the selection of aspects of reality and the application of specific frames to them for clearer comprehension or better communication purposes (Grbich, 2007:18).

This idea of framing is of particular importance as these frames influence my individual interpretation of my data, my reality and my practice. The four areas of framing originally described by McLachlan and Reid in 1994 are (Grbich, 2007:18):

- Extratextual
- Intratextual
- Intertextual
- Circumtextual

3.2.1 Extratextual frames

It is not possible to put down on paper all of my accumulated knowledge through which I view the world; in other words, my extratextual frames. I may not even be aware of what accumulated life experiences influence my worldview, so I have selected two facets that I think have been the font of my values of care and agency. The first is that I am scrupulous about separating my personal from my professional life in order to protect myself from those who wish to harm me via my family. My husband works in a similar work environment and has been very successful in a very competitive arena, but by so doing he has also become a target for professional resentment. As a postgraduate student at master's level and then as a junior member of academic staff I have had to endure some low-level harassment in the form of uncalled for personal comments or messages to my husband. As a result I have an over-developed sense of separation between my professional self and my personal self. The only times when I allow the two selves to

merge explicitly is with students who do not pose a threat and who are refreshingly unconcerned about who I am married to. The second facet flows from the low-level harassment and relates to an incident where my studies were negatively affected by academic staff that did not have the ability to separate an academic request on my part from the work of my husband. Over time I have come to realise what bothers me the most is not the one-year delay of graduation for my master's degree, but the fact that no-one cared enough to check the academic merit of the request. These extratextual frames serve to uncover the reasons I have elevated my values of care and agency above any others.

3.2.2 Intratextual frames

Intratextual frames are the internal framing devices. Within this frame I can be described as a white, female, middle-class, middle-aged, liberal person. Perhaps more revealing is my Whole Brain[®] profile.

The Herrmann Brain Dominance Instrument (HBDI[®]) illustrates and explains the way “we prefer to think, learn, communicate and make decisions” both as a preference but also when under pressure or in a variety of social situations (Herrmann International Africa, 2013). This metaphorical profile divides the brain into four quadrants: Quadrant A (blue, which represents my intellectual self), Quadrant B (green, which represents my safekeeping self), Quadrant C (red, representing my emotive self), and Quadrant D (yellow, representing my experimental self). Individual preferences are determined via a 120-item questionnaire. The whole brain model and accompanying principles for learning are discussed in detail in the education literature (De Boer, Bothma & Du Toit, 2011; De Boer, Steyn & Du Toit, 2001) but a brief introduction with the use of my personal profile (Figure 3-1) is provided.

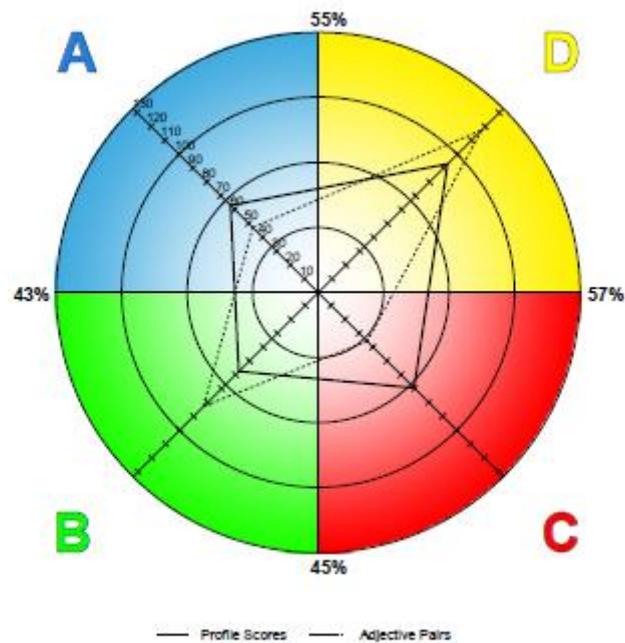


Figure 3-1: My HBDI® profile

My preference for quadrant A (preferences are indicated by the solid line in the profile) is characterised by my preference score of 63 and is indicative of a preference for logical, rational processes such as analytical, fact-based and quantitative thinking. My quadrant B can be described as a structural and procedural quadrant that includes sequential, organised, detailed and planned thinking with a score of 57. Quadrant C (preference score of 69) brings the expressive, sensory elements that include my interpersonal, feeling-based, kinaesthetic and emotive thinking. Although not explicitly described in the work of Herrmann, quadrant C thinking includes intra-personal thinking – a key antecedent for reflection and learning.

Lastly, Quadrant D represents my visual imaginative approaches of holistic, intuitive, integrating and synthesising thought. This quadrant is my dominant quadrant with a preference score of 93. My most comfortable communication approaches are: providing an overview; idea chunks; involving others and being sensitive to others. My most natural problem solving strategies include: visualisation; free-flow brainstorming; sketching or modelling; intuition; team processes and building on the ideas of others.

More detail of the thinking style preferences is provided through a number of preference codes, adjective pairs, profile scores and descriptors (Table 3-1).

Table 3-1: My HBDI quadrant codes

Quadrant	A	B	C	D
Preference code	2**	2**	1*	1*
Adjective pairs	4	7	3	10
Profile scores	63	57	69	93
Work elements	Analytical Problem solving		Interpersonal	Integration Conceptualising Innovating
Key descriptor of general overview of my mental preferences in daily life	Critical Rational Logical	Dominant	Emotional Intuitive	Intuitive Holistic Synthesiser

* Primary preference

** Secondary preference

My most descriptive descriptor in my profile is 'critical'. The adjective pair score is an indication of how my general preferences change when I am under pressure. The adjective pair score has a maximum total score of 24. My highest score (10) reveals my preferred thinking style under pressure. This response under pressure is indicated by the dotted lines plotted in Figure 3-1. While not perfectly aligned with my profile the adjective pair distribution suggests that a less-preferred quadrant could become more dominant when under pressure. Of primary interest in the profile scores is my clear preference for Quadrant D thinking or holistic, big-picture thinking – a boon for my choice of discipline.

3.2.3 Intertextual frames

Intertextual frames are those frames that I am partial to as a result of my professional discipline. I am currently a senior lecturer in public health at the School of Health Systems and Public Health (SHSPH) at the University of Pretoria in South Africa. My professional background has its origins in the health care sciences, as I completed a bachelor degree in nursing before practising as a professional nurse for several years in a private hospital. During a hiatus I volunteered at the World Health Organisation in Geneva and upon return to South Africa I was part of the first cohort of students to enrol for the Master of Public Health at the SHSPH. Upon graduation I joined the SHSPH as a lecturer in Health Policy

and Management and was primarily concerned with the academic programme coordination that formed a substantial part of my work. In 2007 I successfully completed the Postgraduate Certificate in Higher Education (PGCHE)⁷ at the University of Pretoria and, as a direct result, resigned my portfolio of the academic programme coordination and have since increased my activities in the facilitation of learning, research, and community engagement of the university. One aspect of my intertextual frame is that I am not a medical practitioner, which makes me somewhat of an outsider in this research. However, by virtue of working in the faculty and in the SHSPH I am also an insider which results in an 'insider' dilemma during the research as respondents do not elaborate as they think we share the same ideology/knowledge etc. (Grbich, 2007:133).

3.2.4 Circumtextual frames

Circumtextual frames involve my interpretation of my workplace as a contextual construction of reality. Throughout my employment at the SHSPH I have been involved in the undergraduate medical curriculum. As part of the academic faculty of the SHSPH I have been involved with colleagues from my own school as well as the School of Medicine in several undergraduate blocks, most notably the SMO 211 'Special Activity: People and their Environment' as a research supervisor and a fifth-year block, Block 16 'Health and Health Care' as a co-facilitator. In the recent past my involvement has increased commensurate with the overall increase of academic pursuits and especially in the fifth-year block that is one of the responsibilities of the SHSPH. All SHSPH academic staff are required to participate in the facilitation of learning about public health in the medical curriculum and this activity is coordinated by the Head of the Department of Public Health Medicine at the School. The conceptualisation of public health in the medical curriculum is under the control of the Head of Department of Public Health Medicine (who is always a public health medicine specialist).

⁷ The PGCHE is a formal programme that focuses on the professional development of academic staff.

Coordination of our activities in the undergraduate curriculum is done via irregular (e.g. none in 2008, 2009, 2010, 2011 or 2012) meetings that are held with regard to the organisational aspects of our involvement (who, when, how etc.).

Staff pose the following typical questions in these meetings. However, these remain unanswered, as the focus of the meeting is operational and no time is allocated to the discussion of the educational intent:

- What are we trying to facilitate learning about?
- How does this [topic] fit in?
- How do we assess this topic?
- Should we include this [topic] at all?

These discussions are overshadowed by the imperative to ‘get it done’ and not ‘to rock the boat’. This approach contributes to the fragmentation of the ‘big picture’ and, as a result, no common understanding of the public health educational outcomes in the medical curriculum can be reached. Part of the challenge is that the current blueprint for the facilitation of learning of public health pre-dates all staff at the school and although no one feels ownership, neither do we feel that we have the power to effect change as individuals.

As a result of the longitudinal structure of the golden thread and the weak common understanding, the inclusion of public health in the medical curriculum is a weak shadow of what it could be and I argue that we need to disrupt the epistemological *status quo* to allow the transformation of this blueprint into one that represents our values.

This transformation into a better version is what Whitehead and McNiff (2006:56) describe as “generative power” and it is through the development of our own and collective understanding that we can construct a deeper and more meaningful understanding of what the public health curriculum could be.

This research process could highlight those important messages that need to be communicated and could lead to a deeper, common understanding of more effective and different ways of communicating these messages. Woodward (1994:392) highlights that retreat from the classroom is not an option for those facilitating learning about public health among medical students. I maintain that our current immobility and disengagement

with the undergraduate medical curriculum is *de facto* a psychological retreat that can be redressed only by challenging our own conceptual horizons.

3.3 Conclusion

This chapter has outlined living theory as the theoretical framework that informs my research. The international proponents of this theory and some South African living theory examples – especially those on curricula development – have been introduced as a justification for my choice of practitioner research. As evidenced by other South African examples, the opportunity for cooperative work and research typical of a community of practice is a professional activity on a path to becoming a scholarly practitioner. What is more, in my context, practitioner research allows for inquiry from within that might not otherwise be possible.

I have also introduced myself in this chapter as “we must acknowledge...that the most important, indeed the only, thing we have to offer our students is ourselves. Everything else they can read in a book” (Tosteson, 1979:693). This chapter has explained the prominence of professional identity within my explanation of self. The four areas of framing originally described by McLachlan and Reid (1994) have been used to partially untangle the Gordian knot of self, knowledge, values and practice.

In the previous chapter I introduced my professional landscape, which has been enriched with a discussion of my personal landscape in this chapter. Concerns regarding my practice have been outlined as a justification of my choice of living theory as a theoretical framework, which leads to the associated research methodology of action research in the next chapter.

4 CHAPTER 4: Measuring and Divining

4.1 Introduction

In Chapter 3 I introduced my personal landscape as a practitioner researcher and motivated my choice of action research living theory within a framework of other educational theories. As my professional intent is self-study research the choice of research design and the activities undertaken during the research are informed by this primary intention. A vital characteristic of the chosen research design is the level of flexibility and adaptability allowed within the design to permit inquiries of my changing understanding of self and my practice. The goal is to have inquiry approaches that “enable new, valid understandings to develop; understandings that empower practitioners to improve their work for the beneficiaries in their care” (Dadds & Hart, as cited in Whitehead, 2008:3).

Chapter 4 first outlines and motivates the overarching research design of action research. The choices made within the broad spectrum of action research designs – the selected action research model – are explained. The rest of the chapter is devoted to a detailed description of the research activities. This detailed description is divided into a quantitative (or measurement) component and the qualitative (or divining) component. The description of each component is supported in turn by a description of the accompanying data analysis approaches and the measures taken to assure the data quality. The chapter ends with a reminder of the delineations that have formed the shape of the research and the limitations that have influenced the findings.

All activities reported in this chapter have flowed from my experiencing contradiction in my professional practice in the undergraduate medical curriculum and these activities have been undertaken to transform my professional practice by engaging with some key questions.

4.2 Research questions

In developing my living theory of facilitation of learning about public health among medical students I have explored four main questions:

- How do we conceptualise public health in the undergraduate medical curriculum?
- What are the intended educational achievements of public health in our undergraduate medical curriculum?
- How can I influence my colleagues' facilitation of learning practice to advance the value of public health in the medical curriculum?
- How do I model characteristics of transformational educational leadership in public health with both my students and colleagues?

This research is informed by a desire to continuously transform my own educational practice in an accountable way so as to establish those conditions in which students, others and myself can generate personally significant, meaningful and potentially transformational outcomes. 'Transformation' in this sense refers both to professional and personal transformation (Mezirow, as cited in Baumgartner, 2001:17) that results in a permanent change in practice, as well as group transformation through collaborative inquiry (Yorks & Marsdick, as cited in Baumgartner, 2001:19).

Central to this pursuit is exploring my practice and taking steps to incrementally progress to a state of practice that embodies my values. In summary, a combination of both research and action.

4.3 Action research

A hermeneutic approach can be described as "interpretive inquiry seeking to understand the meanings of parts within a whole" (Grbich, 2007:20). Within the major traditions of inquiry (iterative, subjective, investigative and enumerative) in qualitative research there are associated research designs (Grbich, 2007:20). These inquiry traditions and the associated research designs are summarised in Table 4-1.

Table 4-1: Traditions of inquiry and design approaches (adapted from Grbich, 2007:21)

Iterative (hermeneutic)	Subjective	Investigative (semiotic)	Enumerative
Grounded theory	Autoethnographic	Structural	Quasi-statistical
Phenomenology	Heuristic phenomenology	Poststructural	Transcendental realism
Ethnography	Postmodern versions of iterative approaches	Discourse analysis	Matrix analysis
Oral history		Content analysis	
Action research		Conversation analysis	
Feminist research and memory work	Feminist research		
Narratives – socio-cultural		Narratives – socio-linguistic	

Action research designs are associated with the iterative tradition (but could also easily fit into the subjective tradition) and this tradition is characterised by (Grbich, 2007:20):

seeking meaning and developing interpretive explanations through processes of feedback. An iterative design is defined as one involving a series of actions of data collection which are repeated until the accumulated findings indicate that nothing new is likely to emerge and that the research question has been answered.

The common element among the iterative designs is a recursive spiral that involves doing fieldwork by gathering data and subjecting the data to a process of critical reflection to construct meaning of the picture that is emerging. The partial answers and theories that emerge from the action research spiral(s) generate more questions and, as a result, there is an implicit understanding that no definite endpoint or final definitive answer can be reached. Meaning is co-constructed by both the researcher and those who are participating in the research. This co-construction of meaning means that no single opinion or finding is privileged above the other.

Although action research is a research design that is associated with iterative (hermeneutic) inquiry, it has a unique aspect of including the actions (beyond data gathering) of the researcher – in this case a practitioner researcher. My value of agency – of being able to bring about change in my practice – suggests that it is this particular feature of action research that resonates with me the most.

An action research approach is an appropriate research design, as it is characterised by a series of cycles – often concurrent – that allows the practitioner to plan, evaluate, act, reflect before/in/on practice and observe the effects of new actions (Du Toit, in Maree & Fraser, 2008:255). This series of action research cycles – or the resultant spiral(s) – has a flexibility that allows both concurrency and responsiveness. Multiple cycles of inquiry are possible and the outcomes of the actions of the practitioner can lead to more than one possible subsequent cycle, or de-routing cycle of activities (Figure 4-1), and are not dependant on a single predictable outcome.

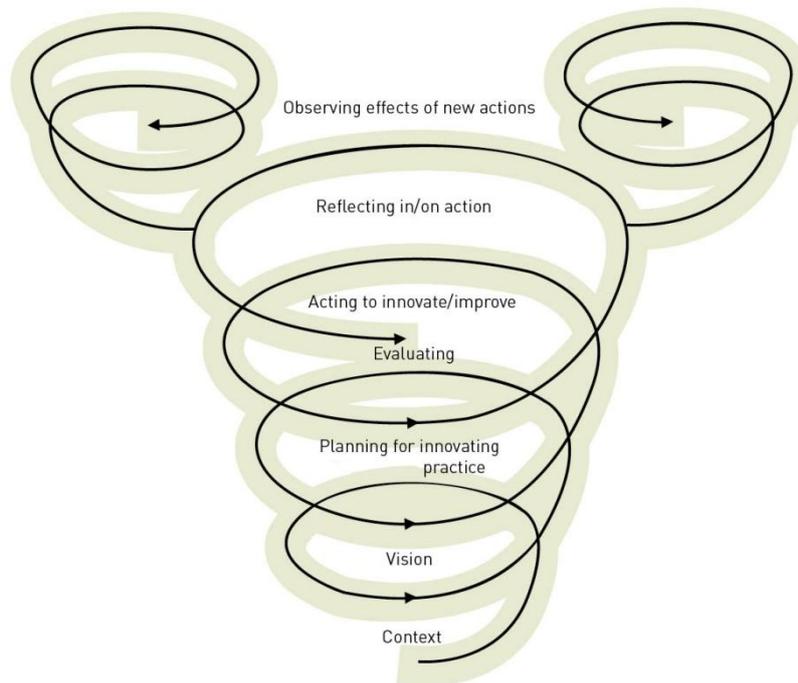


Figure 4-1: A visionary action research model for innovating practice (Adapted from Du Toit, 2008:255)

The adaptability of action research makes it extremely useful for educational research, as there is no single predetermined ideal outcome, rather an evolution towards a more fulfilling state of practice. In education the outcomes are usually unpredictable and the

idea of reflection-in-action as described by Schön (1987:3) highlights the responses that lecturers make when confronted with surprises in their interaction:

When someone reflects-in-action, he becomes a researcher in the practice context. He is not dependent on the categories of established theory and technique, but constructs a new theory of the unique case (Schön, as cited in Whitehead, 1989:42).

Schön (1987:4) extends his concept of reflection to that of reflection-on-action which is undertaken after the event and reflection on reflection-in-action (or meta-reflection).

I have found the action research spiral described by Du Toit (2008:255), Zuber-Skerritt (1992:17) and others insufficient to represent the complexity of all the forms of reflection as described by Schön and have therefore modified the traditional single spiral or helix of action research to a double helix that is a more accurate representation of my action research. The second helix amplifies the primary action research cycle and represents the meta-reflection cycle – including all forms of reflection – that generate understanding and professional transformation (Figure 4-2).



Figure 4-2: My double helix of action research

Within what can be called the broad church of action research, I have elected to use the specific approach of living theory that was introduced in the previous chapter as my theoretical framework.

When knowledge is co-constructed, primacy must be given to those who participated rather than the processes followed. The ontological core of this research is the primacy of the ethical considerations that guided the relationships between myself as researcher and others as co-researchers or participants.

4.4 Research participants and ethical considerations

The rich composition of research participants ranged from international experts to internal faculty members and students, and finally to the external members of my validation group. In total there were 822 distinct contributors. In order to promote clarity these research participants are described in detail in the subsequent sections that discuss the methods of data gathering (Sections 4.6.3 to 4.6.7). However, despite the composite nature of the research participants there were general features that characterised our relationships. I tried to engender an atmosphere of equality and respect irrespective of organisational position and viewed all participants not only as participants but also as potential co-researchers who were invited to engage in creative, collaborative enquiries to improve our/my practice.

During this study I adhered to all the ethical principles outlined in the World Medical Association's Helsinki Declaration (2005) and complied with the ethical convention of the Faculty of Education with which this study is registered. The study did not foresee any potential harm to participants. Mechanisms were in place to assure that no participant, student or not, was forced in any way or felt compelled to participate in the activities and/or evidence collection of the study, or would be in any way negatively influenced by the study (*vide infra*).

The research protocol was served at the Research Committee of the Faculty of Education, University of Pretoria (UP) on 20 April 2010 and was approved and identified as HS10/05/01 (Appendix B). As the research involved students and staff of the University of Pretoria, approval was also required by the registrar of the university (Appendix C).

I consider students to be a vulnerable population, as they might feel under duress to participate so as to avoid the possibility of my developing a negative attitude towards them as the researcher or, at the extreme, poorer marks being allocated to them. One exception in terms of students being obliged to participate was an avenue of inquiry that emerged from discussions within the workshops held with the staff of the School of Health Systems and Public Health (SHSPH). One of the proposed innovative facilitation of learning strategies that emerged in our discussions depended on the students' use of social media. Enquiries made in the Faculty of Health Sciences made it clear that we had no information regarding the use of social media among our students.

One opportunity to explore this was Block 2 in the second year of study. Block 2 is a combination of activities, which when combined form BOK 284 (for medicine) and BOK 283 (for dentistry), and is described as 'People and their Environment'. One of the components is the special study module (SMO 211), which is the sole responsibility of the SHSPH. All second-year medical and dental students are arranged in groups of approximately five to six students and allocated to a supervisor and given an accompanying research topic. These students have no choice but to participate as researchers as this is part of the block. As the research topics are generated by the clinical and academic staff I suggested the inclusion of exploring what medical students understand as public health and their use of social media. The detail of the contributions of these students is outlined in Section 4.6.6 in this chapter.

For all the various research activities an information letter was provided as part of the process of obtaining consent. Written permission was obtained from the participants in the interviews and workshops (Appendix D and E). Separate written permission was obtained for the video or audio recording of interviews and workshops (Appendix D and E), and use of existing documentation (Appendix F and G). The information letters formed an integral part of the anonymous questionnaires used in the paper-based surveys (example in Appendix H). In the case of the web-based Survey Monkey surveys the information contained in the letter was included and participants were given the option to participate by either choosing an option to participate that led to the first question (Appendix I) or those who chose not to participate were redirected to a page that thanked them for accessing the survey.

Two aspects of the research were submitted separately to the Research Committee of the Faculty of Health Sciences for review.

The first was the investigation into the planned public health elective. The rationale for a separate submission stemmed principally from a requirement of the South African Regional FAIMER Institute (SAFRI) fellowship that included the development of a separate research proposal and separate ethics committee approval. This protocol entitled 'Characteristics of community-based public health electives that would meet the needs of our students, our partners and ourselves at the University of Pretoria' was approved by the Research Committee of the Faculty of Health Sciences on 20 April 2011 and identified as 73/2011 (Appendix J).

The second separate submission comprised four separate protocols that were developed under the supervision of a Masters in Public Health Medicine registrar, Dr Lehlohonolo Majake. Dr Majake was in turn being supervised by me as part of her own degree requirements. The rationale for these separate submissions to the ethics committee was to fulfil the requirements of SMO 211. Protocol development, questionnaire development and ethics submission form part of the preparation for data gathering, analysis, report writing and oral feedback that constituted the learning opportunity for the medical and dental students in SMO 211. These protocols were approved by the Research Committee of the Faculty of Health Sciences on 31 May 2012. The studies were allocated unique numbers, although the research activities formed part of the approved overarching study (HS10/05/01). The inclusion of these studies as part of the overarching study was made explicit in the protocols and in the information letter to the participants. The four groups who participated were:

- Group 6: Third-year medical students' understanding of public health (S83/2012);
- Group 33: The understanding of public health by MBChB V students (S84/2012);
- Group 35: Perceptions of public health among fourth-year medical students (S85/2102);
and
- Group 38: First-year medical students' view and knowledge of public health in South Africa (S86/2012).

The data gathering amongst the second-year medical and dental students themselves is described in detail in Section 4.6.6.

4.4.1 Data management during data gathering and data analysis

All electronic documents, video and audio material was stored on my work laptop in a password-protected file and backed up in a cloud-based DropBox to ensure that no data could be lost during data gathering and data analysis. All hardcopy data were kept in a locked cupboard in my office.

4.4.2 Data storage

All hardcopy and electronic data (stored on a portable drive) will be stored for 15 years from the commencement of this study in the allocated data storage room at the SHSPH in order to meet the requirements of the Research Committee of the Faculty of Education and the Research Committee of the Faculty of Health Sciences (UP).

4.4.3 Confidentiality and anonymity

Anonymity is ensured by the use of aggregated data from the surveys and the use of identity codes for the responses to the open-ended question contained in the questionnaires. Where anonymity is not possible for participants (e.g. block chairpersons) confidentiality is ensured by the use of identity codes.

4.5 Research setting

The research setting is the myriad natural settings where facilitation of learning with the undergraduate medical students takes place. As there is some variability in terms of both group sizes and settings where learning occurs this is outlined for clarity.

The pre-clinical years: Most interaction takes place in large groups (more than 200) in formal classroom settings in the lecture halls of the Prinshof Campus of the University of Pretoria.

The clinical years: The majority of classroom interaction takes place with smaller groups (50) and smaller group reflection takes place in groups of approximately 18 students.

The virtual classroom/webpage: This space for facilitation of learning is currently underutilised and the development of such a space to which students have access over all their years of study formed part of my professional activities. Currently, the virtual classroom is linked to the blocks and only students who are registered for that block can access the resource material in that particular year.

The community and community-based facilities: Increasing use is made of external partner organisations that accommodate medical students in their activities. In the majority of cases these are public-sector health facilities such as primary health care facilities but more use is being made of community-based structures and organisations.

4.6 Research methods

4.6.1 Introduction

‘Methods’ can be defined as ways of doing research that include both the guiding principles and the overarching strategies. The term also covers a description of the actual research practices (Ten Have, 2004:1).

My professional intention informed my inquiry approaches as opposed to a methodology that was pre-determined and inflexible (Dadds & Hart, as cited in Whitehead, 2008:3). The key criteria for the choice of approaches to inquiry were those that could contribute to deeper and new understandings, which are a feature of my professional development and transformation.

My professional intention is to research the educational influences in my own learning, in the learning of others, and in the learning of social formations. This intention is extended to professional knowledge, professional practice and educational leadership. A living theory approach to action research is ideally suited for this purpose and allows for a dual focus – the convergence of meaning of the ‘big picture’ of public health and the lived professional values of public health and education in my practice – from an autoethnographic perspective. Autoethnography is described by Grbich (2007:56) as “auto (self) ethno (culture) graphy (presentation of the self within the culture)”.

An autoethnographic perspective:

displays multiple layers of consciousness, connecting the personal to the cultural...first through an ethnographical wide-angle lens, focussing outward on social and cultural aspects of their personal experience; then, they look inward, exposing a vulnerable self that is moved by and may move though, refract and resist cultural interpretations (Ellis & Bochner, as cited in Grbich, 2007:57).

Connecting the personal to the cultural is reliant on connection with the participants in my educational practice and in particular those who constituted the sample.

4.6.2 Sampling

Throughout this research journey I had to make choices on who and what to include; in other words, on the sample. In general I chose people or documents that could enrich or contribute to constructing my theory (theoretical sampling) and those that met my selection criteria (purposive sampling). As my various professional activities took different directions with concurrent, divergent and serendipitous cycles of inquiry, the selection of the participants and the documents that were used are described in full detail in the sections that describe the specific data gathering strategies (Sections 4.6.3 to 4.6.11).

4.6.3 Data gathering

The data gathering was complex and is a reflection of the complexity of my professional practice. One component of this complexity was the emergent nature of the research that led to many concurrent cycles of inquiry, many of which were unplanned for. This divergence was expected as the process was multi-dimensional and several de-routing cycles surfaced as a result of the activities (Figure 4-1).

Although divergence is characteristic of the generative nature of action research, data gathering can be traced back to three primary sources. These sources were my ongoing professional activities, my meta-learning including my professional development activities, as well as the validation processes.

4.6.3.1 Data gathering from my professional activities

Both qualitative and quantitative data were collected as part of a mixed methods strategy advocated by Creswell (2009:214). A concurrent embedded strategy was used, as this strategy allows for simultaneous data gathering and allows for the secondary quantitative methods to be embedded within the primary qualitative methods (Creswell, 2009:214). In this way composite supplementary data were generated that can support an evidence-based judgement of the influence of my actions. The data has enabled me “to make a judgement about the educational influences in learning of what I am doing in relation to my values, skills and understandings” (Whitehead, 2008:5).

A summary is provided in the form of a table (Table 4-2) to provide an overview of my planned professional activities, the research questions associated with these activities, as well as the methods employed.

The detailed description of each method employed in measuring and divining my practice is discussed later in the chapter.

Table 4-2: Summary of my research questions, planned professional activities, and methods

Research question	Sources of data and data gathering	Methods	Data analysis	Quantitative/ Qualitative
How do we conceptualise public health as a subject in the undergraduate medical curriculum?	Minutes of meetings (Golden Threads Committee and SHSPH committees)	Record review	Text analysis	Qualitative
	Block books from MBChB I-V Chairperson of the School of Medicine	Record review Series of semi-structured interviews	Text analysis Text analysis	Qualitative Qualitative
	Block chairs	Semi-structured interviews	Text analysis	Qualitative
	Expert interviews (international and national)	Semi-structured interviews	Text analysis	Qualitative
	SHSPH staff	Workshop	Text analysis	Qualitative
	SHSPH staff and School of Medicine (planning meetings)	Record review	Text analysis	Qualitative
	Medical students (2012)	Questionnaires	Descriptive statistics Analytical statistics	Quantitative Qualitative
How can I influence my colleagues' facilitation of learning practice to advance the value of public health in the medical curriculum?	LinkedIn online networks: - Global Public Health - Public Health Africa	Online discussion to explore a metaphor for public health.	Text analysis	Qualitative
	Staff (SHSPH)	Workshops	Text	Qualitative

Research question	Sources of data and data gathering	Methods	Data analysis	Quantitative/ Qualitative
What are the intended achievements of public health in our undergraduate medical curriculum?	Staff (SHSPH)	Workshop	Text and visual analysis	Qualitative
	Document generated by the workshop at the University of Witwatersrand	Record review	Text analysis	Qualitative
How do I model characteristics of transformational educational leadership in public health with both my students and colleagues?	Introductory session with first-year medical students to provide the 'big picture' framework	Questionnaire	Descriptive statistics and text analysis	Quantitative Qualitative
		Classroom observations: field notes and reflection notes	Text analysis	Qualitative
	Use of social media	Number of 'hits'	Descriptive statistics	Quantitative
		Questionnaire to explore the use of social media amongst medical students	Descriptive statistics	Quantitative
		Reflection notes	Text analysis	Qualitative
	Own facilitation of learning practice	Standard UP surveys	Text analysis	Qualitative
		Constructive peer feedback, field notes and reflection notes	Text analysis	Qualitative
Online surveys		Text analysis Descriptive statistics	Qualitative Quantitative	
Interviews		Text analysis	Qualitative	
	Reflection notes	Text analysis	Qualitative	

4.6.3.2 *Data gathering from my meta-learning process*

My core action research spiral or helix (Figure 4-2) was amplified by a second concurrent spiral of reflections during which I reflected as a practitioner on the steps of the process, in this way performing a meta-cycle of inquiry.

Data of these critical reflections into the processes were collected in the form of reflective notes and have been included as a narrative of my professional development (Chapter 9).

The purpose of this meta-learning was to examine my concurrent professional development, as a result of not only this research but also of participation in an educational fellowship, doctoral support programmes and a peer-support group.

4.6.3.3 *Data gathering of my validation processes*

The process of validating claims against the articulated criteria and standards of judgement with critical readers and validation groups formed part of gathering data. Standards of judgement are an outflow of value judgements in that they measure the quality of a practice against the criteria that have been set. For example, an ontological value of fairness would be the standard of judgement when reviewing one's educational practice. The process begins with the agreement of the values such as comprehensibility, truthfulness, sincerity and appropriateness as the grounded values against which the evidence is judged (Whitehead & McNiff, 2006:105). An example of articulating the standards of judgement based on the values is outlined in Table 4-3.

Table 4-3: Articulating values and their standards of judgement

Values	Standards of judgement
Comprehensibility	Clear articulation and explanation
Truthfulness	Telling the truth and avoiding deceit
Sincerity	Telling things as they are without falsehood or embellishment
Appropriateness	Showing an awareness of the normative context of the encounter

(Whitehead and McNiff, 2006:106)

The validation process itself is a rich source of data, as written and visual evidence can be collected of the validation process itself, from the development of standards of judgment and criteria that guide all the validation meetings as encounters, (Whitehead & McNiff, 2006:106) to the consideration of the evidence.

This democratic approach to making judgements on the evidence presented can be considered to be an ethical and moral act:

When the encounter can be shown to have realised the social values agreed by all participants, participants can claim that they have acted morally in relation to one another, that is, they can claim moral authority for their practices (Whitehead & McNiff, 2006:106).

A wide range of research methods was used in gathering data from my three primary sources of professional activities, professional development and validation processes. The first of these were the semi-structured in-depth interviews.

4.6.4 Semi-structured in-depth interviews

The use of semi-structured in-depth interviews was influenced by two considerations. The first was the theoretical consideration that “whatever happens in society is seen as the product of...conscious, morally accountable beings” (Ten Have, 2004:84). This statement can be extended to medical educators and what happens in the lecture halls, ward rounds and practice sites. These medical educators hold personal theories of public health in the medical curriculum and through in-depth interviews these personal theories could find expression.

The second consideration was a practical one, as interviews could be used to efficiently construct knowledge on these personally held theories of public health in the medical curriculum that no other method offered. Relatively little time and effort was involved when compared to, for example, waiting for the same phenomenon by observing every facilitation of learning interaction within the curriculum. The use of interviews instead of observations was also advantageous as I was specifically interested in the interview

participants at a more abstract level – a level where they were representatives of their academic peers rather than as individual facilitators of learning in the lecture halls.

Flick (2007:84) outlines some of the standard disadvantages of interview research such as its being subjective; reflecting only common sense; being biased; being intersubjective (different readers can find different meanings); and not being generalisable.

The advantages of capturing the lived everyday experience of interview participants and exploring the central themes of this lived world outweighed the methodological steps necessary to address the disadvantages.

4.6.4.1 Participants in the semi-structured in-depth interviews

Four levels of perspectives of public health were explored using in-depth interviews. In sequence, from the most operational viewpoint to the most abstracted viewpoint, these were interviews with the block chairs, the vice-dean of medicine at the University of Pretoria, a South African public health expert and two international experts. In addition the views of one community partner were explored regarding their experience of hosting medical students in a public health elective (Appendix K).

An initial meeting was held with the most senior person in the School of Medicine – the chairperson of the School of Medicine (also the vice-dean of Medicine⁸) prior to the start of the research. The primary intention of this meeting was professional courtesy to brief the vice-dean of my planned activities. A second and vital intention was to ensure support for the research, as I was greatly dependent on participation by the academic staff members of the School of Medicine. While both these objectives were achieved it became clear in our discussions that there would be an opportunity to do a series of interviews with the vice-dean who has many years of experience at the University of Pretoria. Much of his experience has also been in a critical time of national review of the medical curriculum that resulted in a curriculum that is problem-orientated and that reflects a primary health care

⁸ At the University of Pretoria there is no dean of medicine, only a dean of the Faculty of Healthcare Sciences

approach (Seggie, 2010:8). This curriculum is commonly referred to as the 'new curriculum'. The interview series with the vice-dean of medicine provided me with an opportunity to build up an important relationship with him and an opportunity to explore the inclusion of public health in our medical curriculum from a more holistic perspective.

A purposive sampling technique was used to invite the block chairs to participate in the interviews. Purposive sampling is the selection of people who are considered as desirable participants (Schwandt, 2007:271; Henning, Van Rensburg & Smit, 2004:71). During the sampling any block that was clearly purely clinical skills related (e.g. General Procedural Skills GPS 280) or academic support (e.g. Academic Literacy EOT 120) was excluded. The chairs of the special study modules (SMO) and special activities (SA) were included in the sample. Where there were multiple block chairs, only the primary contact person was invited. Some individuals are chairs of more than one block, SMO or SA, so the population of block chairs who met the inclusion criteria was 20 individuals.

A South African expert was invited to participate in the interviews. This expert had a unique profile as he was previously the head of the department of public health medicine at my university, had served on a national body on public health and has a passion for education. In addition he was the only person with insider knowledge from the SHSPH who was employed at the time of the national curriculum review that resulted in the so-called 'new curriculum'.

Purposive sampling was also used in the selection of the international experts. Serendipitously two international experts and protagonists on social accountability attended the Global Consensus meeting of Social Accountability for Medical Schools in East London between 10 and 13 October 2010. I made use of being a participant myself to invite them for individual interviews as an opportunity to deepen my understanding of social accountability, as social accountability and public health share the same fundamental values of relevance, quality, cost effectiveness and equity.

A methodological dilemma associated with interviews is that the interview is often characterised by an asymmetrical, hierarchical relationship between the interviewer (who is in a position of power) and the interviewee (Flick, 2007:14). Owing to my professional position as lecturer (and later senior lecturer) in the faculty I was never of higher academic

rank than any of my interviewees; quite the contrary. A second methodological dilemma was that as I am employed by the university 'official' responses could be given. One benefit of public health is the low profile of the discipline in the faculty and therefore an unlikely 'official' response existed.

An advantage of individual interviews is the level of facilitation when they are compared with other forms of data gathering such as focus group interviews, as the interviewer can elicit information through questions and responses. As there were two distinct strategies for data gathering in this research (the single interview versus the series interview) two different approaches to interview was used.

The single interview was characterised by a standard set of guiding questions that were used to elicit reflective discussion. Although the questions were not posed in the same order (as interviewees frequently covered the ground freely), I ensured that all questions were responded to. The interview guideline for the block chair interviews is included in Appendix L. The questions used for the interview of the local expert were adapted from the guiding questions from the SHSPH workshops.

In contrast, the series of three interviews with the vice-dean of medicine were characterised by an initial question in the first interview, which in turn generated subsequent questions for exploration in subsequent interviews. The introductory questions from the interviews with the vice-dean were:

- Interview one: What is the next big idea in medical education? (Academic Medicine question of the year 2011).
- Interview two: The HSPCA regulations refer to having medical public health as a prominent curriculum theme. So what do you think they envisage/want with this inclusion?
- Interview three: So what roles [for our medical students] do we consider ideal?

All the interviews can be characterised as discourse units, as the style of interview was one that invited a "longer telling" (Ten Have, 2004:64). The average interview was 45 to 60 minutes in length. All the interviews were conducted in English although interviewees were not prevented from participating in Afrikaans, and some did occasionally make use of Afrikaans to express themselves more freely.

The guiding questions were not treated as questions that should be answered either successively or independently, but rather as a space for reflecting on practice between conversational participants. The telling was left to the interviewee with supportive contributions such as ‘yes’ or ‘mmm’ from me to demonstrate my understanding of the information. In order to maintain a dialogue I was led in some instances to focus on the gist of the information and foreground parts of the information by responding in ways such as ‘oh, is this like...?’ or by reflecting on an implication by responding ‘does this mean that...?’ In this manner I acted as a secondary speaker as described by Ten Have (2004:70), as the purpose of the interviews was explicitly not to evaluate people’s work but to be a part of the process of co-construction of knowledge. This unfurling process is a collaborative relationship in constructing knowledge.

Although the literature suggests a neutral and accepting stance (Denscombe, 2010:179; Ten Have, 2004:74), a neutral stance was neither possible nor desirable in this research. I made it explicit to my interviewees that this process was not one of evaluating them or their practice and that it would be impossible to measure them against any hypothetical standard, as no such standard exists. In this manner I made my exploratory stance overt. But my exploratory stance was not a neutral one in the sense that I was fully engaged in exploring our co-construction of knowledge and practice of public health as evidenced by my contributions in the transcripts. While the interviewees were active in constructing meaning, I was also engaged in not only encouraging meaningful narrative, but also highlighting parts of the interviewee’s narrative as being pertinent and bringing this practice or understanding to our attention.

4.6.4.2 Data gathering steps for the semi-structured in-depth interviews

Invitations to participate were in person (international experts; vice-dean of medicine and community partner); via individual e-mail (local expert); and via group e-mail (block chairs).

Invitations to the block chairs were grouped together on the basis of the time of the year that their blocks ran. Invitations were sent out after the completion of the blocks and examination and vacation periods were avoided. As a result three rounds of invitations were sent out (17 May 2011; 17 June 2011 and 31 January 2012). The invitations

explained the purpose of the research, the planned duration of the interview, and emphasised the practical arrangements such as the venue for the interviews.

Of the 20 possible block chair interviews, eleven accepted, one person passed away, one declined due to the pressure of his own research, and seven did not respond. One of the interviewees deferred the interview on the day of the interview, did not react to a follow up request for a replacement date, and subsequently retired. A possible reason for invitees for not responding could be the clinical and academic load. No second invitations were sent. The final composition of the ten interviewees represented 15 blocks/SMOs/SAs from all five study years. In determining how many interviews are sufficient to ensure data saturation, Guest, Bunce and Johnson (2006:74) report that data saturation occurred after 12 interviews and that six interviews were enough to support their metathemes (2006:78). Key to reaching data saturation with these numbers are the homogeneity of the study population, the narrowness of the study objectives/content and a degree of structure within the interviews (Guest *et al.*, 2006:75). All of these requirements were met with the block chair interviews.

Individual e-mails were sent to those who accepted invitations and the operational issues such as venues and times were confirmed on the basis of the preference of the interviewee. All but one interview was conducted in the interviewees' offices. The single exception was that of a block chair who works off site and preferred to combine the interview with a visit to the faculty. This interview was conducted in my office.

The interview with the South African expert was also conducted in my office while the two interviews with the international experts were conducted at the Global Consensus meeting of Social Accountability for Medical Schools in whatever venue was available for our use at the time of the interview. The interview with a representative from the community partner had to be deferred due to medical students' extension of study period (Chapter 7, Section 7.4.4.5), and was completed via e-mail.

4.6.4.3 Data recording of the semi-structured in-depth interviews

All the interviews were recorded, either with the use of video or audio recording depending on the preference of the interviewee. In both instances a video camera was used and the lens was left closed for audio recording.

The data were sent for professional transcription and was checked by myself for accuracy. Any component that could not be heard was identified in the text as [inaudible] and any term that was unknown to me was highlighted in the text in yellow. The reviewed transcriptions were sent to the interviewees for member checking with an invitation to check for the content and to add any further insights or comments that they might have had in the interim. These final versions of the transcripts were then saved in the same manner as the original material.

4.6.5 Workshops

I revised my original intention to conduct a series of focus groups as a method of exploring the multiple understandings and practices surrounding the facilitation of learning about public health in the undergraduate medical curriculum within our school. Upon reflection I decided that the use of an external moderator would inhibit free and frank discussion of our personal understandings and practices both as individuals but also as a school of public health. As a result the workshops were only attended by internal staff and were in every other aspect similar to a focus group. This decision is an example of methodological inventiveness (Dadds & Hart, 2001:169) that resonates with a peer-led approach to professional development, which is my preferred approach – especially in workshops such as these where co-constructed knowledge is the aim.

In the two workshops it was the interaction between the participants that formed the basic data source. The purpose of the workshops was to search for joint knowledge and understanding of what our intentions are with public health in the undergraduate medical curriculum and the best strategies for including public health in this curriculum.

The key features of focus groups described by Denscombe (2010:177) were preserved during the workshop format:

- There was a focused discussion around a particular topic (such as the intentions of including public health in the medical curriculum) or common experience of which each participant has knowledge;
- Emphasis was placed on the interaction amongst the members as a means of generating information; and
- My role as the moderator was to facilitate rather than lead the discussion.

The disadvantages of a focus group, such as not being representative, not being able to meet due to geographical dispersion and possible domination within the group (Nieuwenhuis, 2007:80), were mitigated in several ways. First, the group was representative of the target group, as it was never the purpose of this research to make conclusions about the intentions of public health in other medical curricula. Second, geographical dispersion was never a consideration, as we all work together. Finally I emphasised the purpose of the research as appreciative inquiry and not accusatory inquiry (Konstant, 2010:269) so that both senior and junior colleagues could participate in a collegial manner.

4.6.5.1 *The workshop participants*

All academic staff was invited to the workshop series by including an invitation in our weekly electronic newsletter (Appendix M) that is circulated to all permanent and extraordinary staff of the SHSPH. The size of the permanent academic staff at the SHSPH is 14, with an additional five masters in public health medicine registrars.

At the first workshop there were five participants, myself included, and the second follow-up workshop had four of the original participants. All of the participants are involved in the facilitation of learning of public health in the undergraduate medical curriculum. I was the only person in the workshops who was not a public health medicine specialist. Denscombe (2010:355) suggests focus groups of between six and nine people in order to allow for a fair range of opinions and experiences. Allowing for the small number of academic staff and the even smaller number who are interested and engaged in the

facilitation of learning among medical students, these workshops could be described as mini-focus groups (Denscombe, 2010:355).

4.6.5.2 Data gathering steps for the workshops

The first workshop (10 August 2011) focused on exploring our intentions of including public health in the medical curriculum. The guiding questions are included in Appendix N. The second workshop (21 September 2011) built on our emerging understandings (we did not seek consensus, but explored every possible answer) from the first workshop and focused on what would be our optimal strategies for the inclusion of public health in our medical curriculum. The guiding questions are included in Appendix O.

The workshops took place in the SHSPH boardroom, which is a formal, private room at the HW Snyman North, Faculty of Health Sciences, University of Pretoria. Both workshops started at nine in the morning and were of three hours duration.

Permission to participate was sought and a participant letter (Appendix E) was used to outline the study and obtain written consent. Separate written consent was obtained for the video recording of the workshop. Biographical data of the participants were collected by means of a self-completed data sheet (Appendix P).

In the development phase the guiding questions for both workshops had been discussed with the head of the department of public health medicine, as he has a unique perspective in that he is responsible for the coordination of facilitation of learning of public health in the undergraduate medical curriculum.

I acted as the facilitator by asking the initial questions, making notes on the flipchart and pasting up the questions on the wall to guide discussion or to clarify the questions (Figure 4-3).



Figure 4-3: Generating ideas in workshop 2 [Used with permission]

The questions were semi-structured in order to obtain a great amount of information and were designed to relate directly to the aims and objectives of this study. As the group size was small, this allowed a high level of involvement with substantial discussion and each participant engaged enthusiastically in the discussion. No participant needed to be encouraged to participate as discussion flowed freely with frequent overtalking where ideas overlapped, or where people were strongly supporting another's point of view.

The workshops had a natural break for refreshments and before the end of the workshops we agreed on the next steps and who would take responsibility for each identified action. The workshops came to a close with my thanking the participants for their contribution.

4.6.5.3 Data recording of the workshop data

The video recording was done by a member of the audiovisual technical team from the University of Pretoria who did not stay in the room but came in only to change the video cassettes.

The data were sent for professional transcription and was handled in the same manner as the transcriptions of the semi-structured interviews (Section 4.6.4.3). Individual workshop participants remained identifiable in the draft text until after the member checking when the

participant's identities were replaced by codes. These final versions of the transcripts were then saved in the same manner as the original material.

4.6.6 Paper-based surveys

The academic requirements of the second-year medical and dental students in the module SMO 211 at the University of Pretoria include protocol development, questionnaire development, and ethics submission. These activities form part of the preparation for data gathering, analysis, report writing and oral feedback. Research topics are either generated by the service partners (mostly primary health care clinics) or the academic staff. This opportunity was used to explore the use of social media among medical students – an identified possible strategy from one of the SHSPH workshops. The survey also made use of the opportunity to explore medical students' knowledge and opinions of public health. The research activities take place in research teams of approximately five to six students and because of the time restrictions of having to complete the research by a certain date, the study design is invariably a descriptive cross-sectional study that uses survey methods. Cross-sectional studies are observational studies that use the individual as the unit of study (Joubert & Ehrlich, 2007:78).

The advantages of surveys are that they are relatively easy and inexpensive to conduct. Surveys are also useful for evaluating the relationship between fixed characteristics such as age or gender and outcomes such as perceived educational needs.

A key disadvantage of surveys is not being able to establish a temporal relationship such as causation between variables, as the variables are collected simultaneously (Joubert & Ehrlich, 2007:78).

There were two distinct development phases in the questionnaire design: staff designed and student designed.

In the first phase the questionnaire was designed as an anonymous, self-completed questionnaire with one open-ended and 45 closed-ended questions (Appendix H). Some of the questions were from the standardised questionnaire developed by the Association of American Medical Colleges (AAMC). The AAMC questionnaire[®] explores the opinion of

graduating American and Canadian students on a wide range of educational experiences and opinions. Permission to use these questions was granted by the AAMC (Appendix Q). Additional questions were developed on the basis of key readings from the literature (Frenk *et al.* 2011; Maeshiro *et al.*, 2010; Skochelak, 2010; Boelen, 1993). Finally a ten-item 'test your knowledge' section was developed by myself, my co-researcher (Dr Lehlohonolo Majake) and a public health medicine specialist (Dr Saiendhra Moodley). The questionnaire was reviewed for clarity of language and sequencing of questions.

In the second phase, four research teams of medical and dental students became co-researchers. Each team worked independently from the others to develop a research protocol and a questionnaire that explored the question 'What do medical students understand public health to be?'

Once the students' questionnaires had been received, the staff-developed questionnaire was shared with them and they were asked to include this staff-developed questionnaire as a compulsory element, remove duplication with their own questions but still ensure that they included some of their own unique questions.

As a result the five versions of the questionnaire contain certain elements that are identical across all research groups with each student-developed questionnaire containing some unique questions. Part of the adaption process included an additional question in the questionnaire that was used for the first-year medical students. A question asking whether the respondent was older or younger than 18 years was added. Those respondents who indicated that they were younger than 18 years had a message attached to this choice that thanked them and instructed them that they should not continue with the questionnaire. This exclusion was the result of a requirement by the Faculty of Health Sciences Ethics Committee that requires parental signature for respondents younger than 18 years of age.

4.6.6.1 *The participants in the paper-based surveys*

Although second-year dental students participated in the survey their data has been excluded in this report as they do not form part of the target population. Table 4-4 outlines the year group, dates of field work, the size of the target population and the members of the responsible research teams.

Table 4-4: Summary of data gathering for paper-based surveys

Year group	Dates of collection	Population size	Student researchers
MBCbB I	4 th and 8 th June 2012	243	Group 38 Jason Bassett Anike Truter Gabriel Nel Eloff Theron Lianie Boshoff Marilie Ungerer And volunteers
MBCbB II	14 th May 2012	250	Liz Wolvaardt and volunteer
MBCbB III	6 th and 7 th June 2012	231	Group 6 Chiao-Ting Lin Anjali Magan Irshaad Mokaddan Sanam Rama Yunus Shaik
MBCbB IV	8 th and 11 June 2012 and in wards/residence	243	Group 35 Tshegofatso Mailula Lesego Marule Benele Mazibuko Jan Nel James van Schalkwyk
MBCbB V	29 th May 2012	225	Group 33 Mia Odendaal Mari Joubert Jedri van der Westhuizen Marvel Sigidi Laurent Nourrice

4.6.6.2 Data gathering via paper-based surveys

The decision to gather data about medical students' understanding of public health and their use of social media resulted in a two-pronged approach to the data gathering. The first approach was conducted by staff of the SHSPH who managed the data gathering

among all second-year medical and dental students and the second approach was the student-managed collection who gathered data from the other study years.

The data gathering among the second-year students took place in the first 15 minutes of the special study module SMO 211 (14 May 2012). A purposive sampling – that selects those who meet the inclusion criteria – was used to invite all the second year medical and dental students to participate by completing the survey.

The information letter and questionnaires were distributed to students at all the entry points to the classroom. A PowerPoint slide that highlighted the voluntary and anonymous nature of the survey and the practical arrangements on what to do with the completed questionnaire was displayed.

Marked boxes were placed at all the exit points. Students who did not wish to participate were asked to place their blank questionnaires in the box. Students were reminded at teatime to hand in their questionnaires.

The second approach was the student-managed data gathering. Although there was some variety in the data gathering (see Table 4-4 above), a few common steps were followed. The number of students in each class was confirmed with student administration, as this informed the number of questionnaires that needed to be printed. The allocated research group leader contacted the class representative of the year group that they had as a research population. The purpose of this step was to brief the class representative on what was planned, to elicit their support in encouraging participation, and to confirm which date and venue would be the most appropriate. In this process of finalising the details for data gathering it became apparent that the timetable included study time for the upcoming examinations and that class attendance would be erratic. A decision was made that data gathering would take place at a time and place most convenient to the study population and not in accordance with the planned dates of 11 to 13 June 2012 that were set aside for this activity. A purposive sampling strategy was used by all four student research groups. Those who met the inclusion criteria of being a medical student from UP, belonging to the target year group and older than 18 years of age were invited to participate.

Another common feature was that notices asking students to participate were posted on the doors to the venues and in the venues themselves. In all cases questionnaires were handed out at the doors of the lecture halls and classes were not disturbed in any way by the collection procedures. The class representative made a single announcement to encourage participation. Clearly marked boxes for the return of the completed questionnaires were placed in the venue before data gathering started. The researchers did not enter the venue until class had ended and even then it was only to collect the boxes and any uncompleted questionnaires.

Each research group had to adapt their data gathering within the constraints of both the time allocated for this activity and the availability of their target populations. The availability of each target population was guided by the class representatives with regard to which days and which sessions were likely to be well attended. Any second gathering of data was intended to allow those who had not attended a previous lecture the opportunity to participate. Researchers made it clear that students who had already completed a questionnaire need not take another later in the day or on a different day. The group who had the fourth-year medical students as their study population did additional data gathering by approaching these fourth-year medical students in the wards or in the residences.

The data gathering among the first-year students was slightly different in a number of ways. The first difference is that this group was not yet on the campus of the Faculty of Health Sciences but was still on the central Hatfield Campus. The second difference was that classes had already ended for this group and the final difference was that the first-year group was a composite group that included many different students taking a common subject such as physics. A decision was taken to approach the students after the completion of an examination, as there were limited opportunities to reach this group. Notices were put up in the venue that asked all the first-year medical students to meet in the foyer after the examination. The examination invigilators were told of the activity.

One complication was that the size of the group who were writing the common examination meant that five geographically spread exam venues were used. The student researchers and volunteers stood outside these venues at the agreed upon time and asked each departing student if he or she were studying medicine. A questionnaire and

information letter were given to those who indicated that they were medical students and he or she was asked to participate. Students were also told that if they did not wish to complete a questionnaire, they should just return the blank questionnaire in one of the marked boxes that were scattered in the foyer of the examination venues.

This data gathering strategy was repeated a few days later to allow those who did not participate in the first data gathering an opportunity to do so. The data gathering on the second occasion was simpler in that the students who were writing this particular examination were medical students only and were in a single venue. The student researchers took turns, with some approaching students, some helping in the completion of the questionnaires, and some collecting the questionnaires. The researchers did not enter the venue until after the examination and this was only to thank the invigilators for their help in opening only one door so that the students were not dispersed over multiple exits. The student researchers made it clear to students that those who had already completed a questionnaire need not complete another questionnaire at the second venue. Examinations were not disturbed in any way by the data gathering procedures.

4.6.6.3 Data recording of the paper-based survey data

All questionnaires were allocated a unique identifying code with the first digit a reflection of the year group. For example all questionnaires completed by third-year medical students are preceded with a '3'. Data were double-entered into a software package EpiData 3.1 (Lauritsen & Bruus, 2004) by an experienced data typist. The EpiData record number was marked on each questionnaire so that the electronic and paper-based records were linked.

The first 50 responses to the open-ended question '*Although we are all clear what we mean by concepts such as surgery, many of us will understand public health in different ways. What do YOU think public health is? [Tip: there is no wrong answer, it is an opinion]*' from each year group were typed into a Microsoft Word document for analysis.

4.6.7 Web-based surveys

One example of my innovative practice was the participation and integration of a fellowship in medical education as part of my research. The Foundation for the

Advancement of Medical Education and Research (FAIMER) in the USA makes use of local institutes. The South African FAIMER Regional Institute (SAFRI) fellowship offers an 18-month fully funded fellowship that is based on submission of an innovative idea to advance medical education and research.

My innovative idea was to include a pre-designed public health elective in the uncontested space in the third-year medical curriculum. This elective forms part of the third-year of study and students self-design and self-organise their elective. This approach is different from some academic institutions where students must choose from a list of pre-organised activities (selectives). The purpose of the web-based Survey Monkey survey was to identify the factors that students take into account when designing their elective. This information was then used to design a public health elective in 2011, 2012 and 2013.

A key advantage of using web-based surveys is that participants can complete the questionnaire at a time and place of their convenience. Also the electronic format is more in line with the target audience's preference for electronic media. From a design perspective the electronic format allows the researcher to make certain questions mandatory and allows for certain questions to be skipped on the basis of the responses received. For example, if a respondent indicated 'satisfied' for a question, the follow-up question that asked for reasons for being 'dissatisfied' can be skipped. The electronic format obviates the need to manage large amounts of paper and the need to do data entry as the data is automatically captured and is available in Microsoft Excel with no data entry errors. Finally the results from a web-based survey are immediately available and there is no delay in waiting for responses to arrive (as is the case with a postal survey).

The drawback of using free web-based survey options is the limitation placed on the number of questions that may be asked. This drawback can be overcome by subscribing to the professional package that allows for greater design choices.

4.6.7.1 Description of the web-based surveys

The questions included in the survey were based on what the literature described when discussing the use of electives in both public health and global health (Jeffery, Dumont, Kim & Kuo, 2011; Murdoch-Eaton & Green, 2011; Carney & Hackett, 2008; Imperato,

2004; Elam, Sauer, Stratton, Skelton, Crocker & Musick 2003; Rosenberg, 1998). A pilot study was done with a small group (n=20) of fifth-year medical students in 2011 and valuable feedback was obtained with regard to both the wording of the questionnaire, as well as the composition of the elective itself.

The needs-assessment survey was prefaced by a participant information sheet that emphasised voluntary participation and that no distinguishing demographic information would be collected as part of the survey (Appendix I). Participants were informed of their right not to participate or to withdraw by not completing the entire questionnaire.

Students who chose to participate in the survey were directed to one open-ended and nine close-ended questions (Appendix I). None of the questions were designed to be mandatory. Students who chose not to participate were redirected to a page that thanked them for accessing the survey.

4.6.7.2 Participants in the web-based surveys

Third-year medical students were made aware of the survey as the basis for designing a public health elective via a short briefing on the 22 March 2011 that formed part of the routine briefing conducted by the Education Office. The Education Office of the Faculty of Health Sciences of the University of Pretoria takes responsibility for the one-month elective (SA10/GNK 488). This cycle of activities was repeated in 2012 with the third-year medical students. The briefing was done in the same manner as in 2011 with the exception that I could not be there and sent an announcement that the staff from the Education Office read on my behalf. In 2013 I once again had the opportunity to do the briefing personally.

4.6.7.3 Data gathering during web-based surveys

In 2011 the survey was created with the use of the online Survey Monkey software and launched on 16 May 2011 by sending a class-wide e-mail with a hyperlink to the survey. A total of 241 e-mails were sent and 11 bounced, of which six could be resolved. A second e-mail was sent on 31 May 2011 as it became clear that there was a misconception, as students thought only those who are interested should respond. The wording of the

second e-mail was more explicit and a sms-message was sent to the class representative to ask students to read their e-mail. An attempt was made to include all the students (whose e-mail bounced) by also putting up a poster. A second poster was placed on the dedicated notice board for third-year students to advertise the planned elective (Figure 4-4).

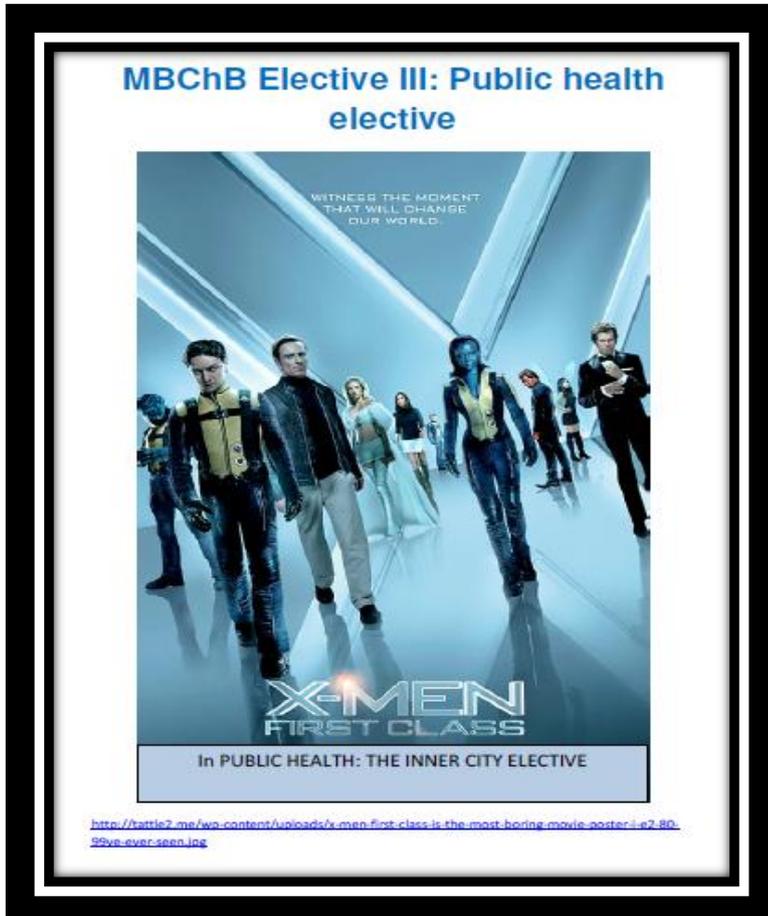


Figure 4-4: Public health elective poster 2011 (extract)

In 2012 the survey was re-created in Survey Monkey and launched on 10 April 2012, with the use of the class-wide e-mail system. A total of 232 e-mails were sent, of which 12 bounced and one could be resolved. A poster was put up on the dedicated notice board for third-year students to advertise the planned elective (Figure 4-5).

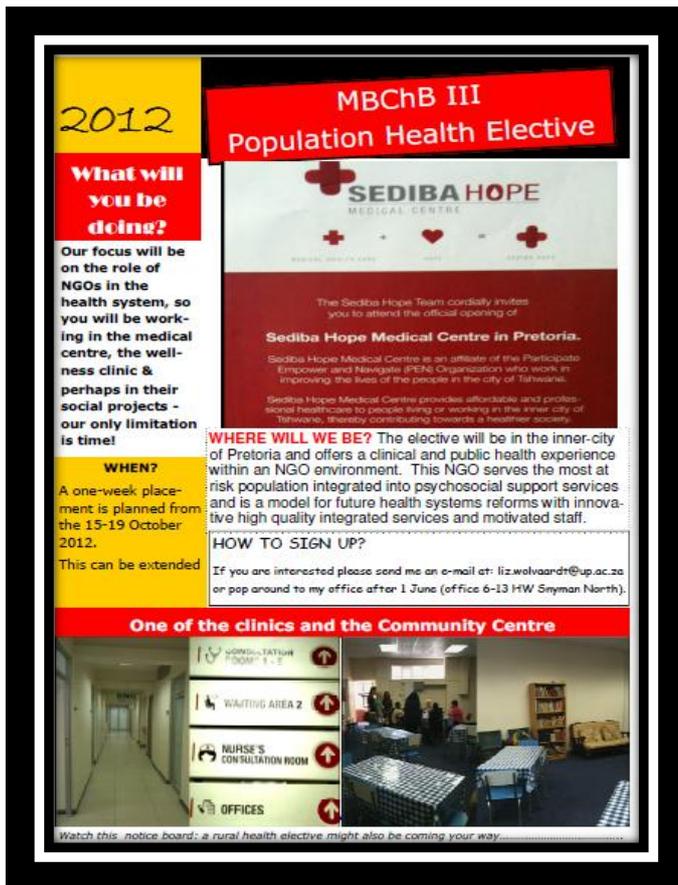


Figure 4-5: Public health elective poster 2012

The survey was not repeated in 2013 and an updated version of the 2012 elective poster was used to advertise the 2013 elective.

4.6.7.4 Data recording of the web-based surveys

The electronic data captured via the online surveys were exported to Microsoft Excel.

4.6.8 Record review

The record review of documents formed one of the foundations of my research. A document refers to any material that is a preservable record of text, image, sound or a combination of the three (Ten Have, 2004:6). Both natural and researcher-provoked documents formed part of the review. A natural document is one that has already been produced for another purpose unlike a researcher-provoked document such as an interview.

Chief among the advantages of a record review is the convenience factor as these documents are already available. A second advantage is that as a researcher I can access information about a reality that either pre-dates me (historical documents) or about a reality that is happening elsewhere (facilitation of learning in the undergraduate medical curriculum, for example). But this advantage of being able to access information out of its time is also problematic, as documents are a product of a situated practice. By taking information out of its original context of social interaction and converting it to a preservable format results in a loss of time and context.

The documents that have formed part of this record review have a primary intended use that is not related to this research. For example, the block books produced for use by the medical students have the medical students of that particular year in mind as the primary audience. The use of these natural documents in this record review therefore constitutes a secondary usage.

4.6.8.1 Documents that formed part of the record review

A number of internally generated documents have been included in this review. First are those generated for the use of staff: the minutes of the meetings of the golden threads committee, the undergraduate curriculum committee and the minutes of the planning meetings held in the SHSPH for the undergraduate programme. Written permission to use the material was given by the chairperson of the SHSPH (Appendix G). The second kind of document is the block books produced for use by the medical students. The block books (2010) were collected from the Education Office at the Faculty of Health Sciences. Written permission to use the material was given by the vice-dean of medicine (Appendix F). Lastly some archive material (1996) was included in the form of a document that was produced as a result of a meeting between the departments of Community Health (CH), Family Medicine (FM) and Community Based Education (CBE). The department of community health was a predecessor to the SHSPH. The purpose of this meeting was to plan the CH/FM/CBE inputs in the 'new curriculum' and for that reason these documents were included, as they reflect an original purpose and strategy of including public health in the medical curriculum. Written permission to use the material was given by the chairperson of the SHSPH (Appendix G).

4.6.9 Video material

One advantage of video recording is that non-verbal communication can be captured and therefore a more complete record of events can be constructed (Denscombe, 2010:187). A second advantage is while audio recordings are disembodied from context, the video recording allows the researcher to return to the moment of the interview. The chief distraction for the use of video has been the argument that video recordings are more intrusive than audio recording. This argument holds true for the video recording of large groups such as a focus group, but with the development of small video cameras the decision to use video is largely based on the preference of the interviewee.

A number of the in-depth semi-structured interviews and both the internal workshops at the SHSPH were video recorded (the rest were audio recorded) and the discussion of the participants, arrangements and data management is reported in the sections that described those methods in detail (Section 4.6.4 to Section 4.6.5).

Another source of material was video recorded – that of my own practice and in particular my oral defence of my doctoral proposal. The session was prefaced by my explaining to the panel and participants my request to video record the session. The purpose was three-fold:

- As a record of the presentation and the feedback received;
- As a record of professional development and practice for meta-reflection; and
- A source of possible material for an action research living theory website.

The voluntary nature was emphasised and those who did not wish to be video recorded were asked to bring this to the attention of the cameraman. In addition the participants' attention was drawn to the fact that this activity had not been submitted to any ethics committee for review. Finally the information letter stated that this video material would not form part of the study. Written permission was obtained for video recording (Appendix R). As a result of the restriction that the material would not be included in the study, it is only my reflections on the process that form part of the data.

4.6.9.1 Data recording of the video material

The video of the oral defence was recorded by an external cameraman and the footage was edited to include my PowerPoint slides that formed part of the defence.

4.6.10 Social media

Electronic social networks were used to explore the development of a visual model or metaphor that represents public health. The intention was to develop this visual model for inclusion as a standard element in presentations to medical students so that each public health learning opportunity in the medical curriculum could be contextualised within the broader construct of public health.

Electronic social networks have the advantage of being able to gather global views from a wide audience at no cost. The disadvantage, however, is that it is not possible to vet the participants even within closed interest groups, as participants can misrepresent their credentials.

4.6.10.1 Data gathering steps in the use of social media

Social media were used for data gathering for two separate activities. The first was to explore what image or metaphor could be used to promote a less fragmented understanding of public health amongst medical students.

The question *'BMW and Mercedes have been so successful with branding that I thought to develop a visual overarching model/metaphor of public health to include in our presentations to students. The surgeons have the scalpel...what do we have? Any thoughts?'* was posted under the heading 'Branding in Public Health'. This question was posed via LinkedIn, a social networking website for professionals. The question was posed to two online special interest groups of whom I am a member: Global Public Health and Public Health Professionals.

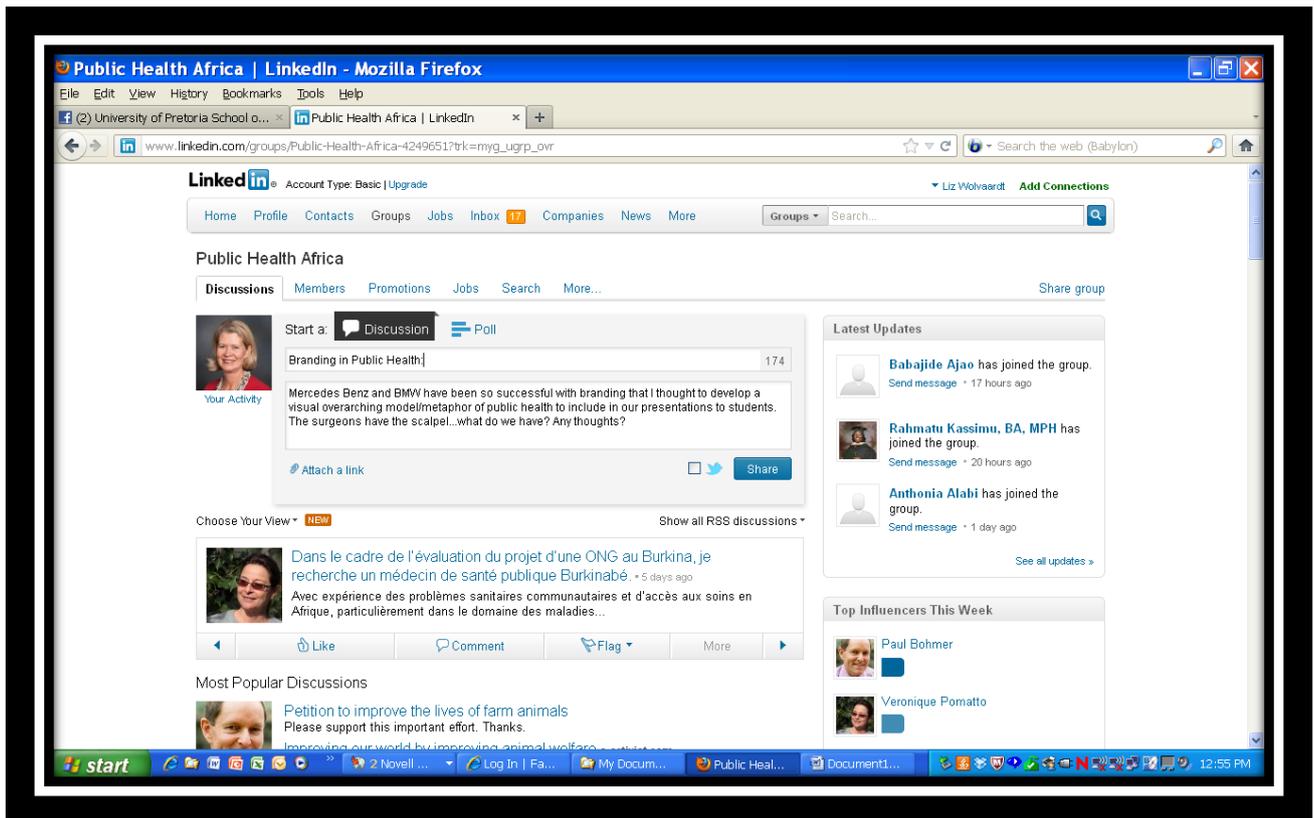


Figure 4-6: Screenshot of the LinkedIn question

Responses from the two groups were collected and a document was created that contained all the responses.

The second activity focused on engaging medical students via the use of social media. The use of social media as a possible strategy to engage students in public health topics emerged from one of the SHSPH workshops. This strategy was attractive as it addressed some of the institutional constraints such as a small number of academic staff in the SHSPH and a medical curriculum that has little available space to include more public health. A two-fold strategy was envisaged. The first was to create a Facebook page for the SHSPH and the second was to explore the use of Twitter. It became apparent that a Facebook page had been created but had not yet been active. The decision was taken to use this Facebook page and specifically include material that would be of use to medical students. The protagonist of this strategy was the person who made the suggestion during the SHSPH workshop and who had some knowledge of the use of social media. The Facebook page was activated and second-year medical students (2012) were made aware of the page as we used the strategy of putting up useful links for one of their

assignments linked to the special study module (SMO 211). Data of the use of the Facebook page was gathered using the inbuilt features of the Facebook software.

4.6.11 Reflections

Rogers (2001:38) critically reviewed the theoretical approaches of the major theorists on reflection: Dewey (1933); Schön (1983); Boud, Keogh and Walker (1985); Langer (1989); Loughran (1996); Mezirow (1991); Siebert and Duadelin (1999). Within these seven theoretical approaches there were a number of common elements in the definition of reflection. The common elements were that reflection is a “cognitive and affective process or activity” that (Rogers, 2001:41):

- Needs the individual to actively engage in the process or activity;
- Is triggered by an unexpected, unusual or puzzling experience;
- Requires examination of one’s beliefs and responses in view of the situation; and
- Results in including the new understanding in one’s experience.

The common steps in reflection found in most of the seven theoretical approaches were (Rogers, 2001:44-5):

- Identify a challenge and decide to seek a solution;
- Gather information of the challenge as a basis to taking action;
- Plan and decide to act; and
- Take action.

I used two ways of developing or fostering my reflective skills. The first was that of my doctoral promoter as a mentor and the second was the use of structured experiences (educational fellowship, doctoral support programmes and a peer-support group) as a starting point for writing reflective notes.

4.6.11.1 *Data recording and data management of notes*

During this research I made use of two kinds of note taking as a basis for reflection. The first were mental notes (MN) (Ten Have, 2004:119) when I tried to fix something that happened in my mind. The second were jotted notes (JN) that were a few words or

phrases that were scribbled as reminders. These notes were observational in nature and were typically specific things people had said, or did and personal insights.

These observational notes were transcribed from the corner of documents where they were made and formed the basis for my theoretical notes that expressed any thoughts that these observational notes had generated. These theoretical notes are also termed memos. In some cases the review of my observational notes suggested some methodological insights and in turn these became my methodological notes.

Note taking and review made up a continuous process that included comparing my recent notes with earlier notes. In this manner I made notes from two different viewpoints. The primary viewpoint was while engaging in my professional activities that are the source of the data and the second was in contemplation of my own personal development. This second stance is reflected by each meta-reflection cycle that generates deeper professional understanding and professional transformation that amplifies the primary action research spiral (Figure 4-2). In this way I was more able to move from the “informal and intuitive knowledge that comes with experience and observation on to an analytic grasp of the forms of the life being studied”(Ten Have, 2004:119).

Each hand-written note that was transformed into emerging understandings of practice and professional development was combined into a document. As part of my professional development I submitted quarterly reports and reflections of my progress to my doctoral promoter. Although submission of quarterly reports was an administrative requirement I used the opportunity to explore innovative ways to represent my co-construction of meaning. Submissions included a message in a bottle; a series of postcards; a puzzle and origami crayfish. Through this creative process the reader (my promoter) was invited to experience part of my journey. Finally the combination of all the reflections from my professional practice and my professional development were transformed into my reflective stories, some of which form Chapter 9.

4.7 Data analysis

Within this concurrent embedded data gathering strategy, primacy is given to qualitative methods and quantitative methods are relegated to a secondary role. Similarly in this

section the data analysis of the qualitative data is discussed prior to that of the quantitative data.

4.7.1 Qualitative data

Owing to the branching nature of this research common elements are elevated for discussion prior to the detail.

4.7.1.1 Use of software

In order to manage and organise the multiple texts that my activities had resulted in I made use of the software package NVivo 8 (QSR International, 2008). The choice to use a computer-based system is not without implications, but the advantages (including development of my own skill in its use) outweighed the disadvantages.

The primary advantage is that the electronic nature of the system allows the researcher to keep track of connections between concepts as well as between concepts and the data from which they were generated. Although data is fractured through coding, the data remains whole and instantly accessible in the software. The data also remains linked at all levels of abstraction: from original text to theory. From this viewpoint software has a distinct advantage over working with paper records.

The second advantage of using a software package is that multimedia such as photographs and video recordings can be used. The multiple functions of a software package such as NVivo facilitate “rich text analysis, flexible interpretations, memos, development of matrices, modelling and framing” (Grbich, 2007:228). Software packages also have some administrative advantages such as keeping a record of all codes generated.

However, useful such a software package may be, there are still concerns. Primary among those concerns is the possible loss of the craft in favour of control (Grbich, 2007:226). Another drawback of using a software package is the loss of meaning that can occur due to the complex coding functionality that the software provides. Grbich (2007:232) argues that the imposition of the complex coding framing becomes more real

than the original reality and cautions that the use of the tool itself changes the way we think and this in turn shapes the outcome and interpretation of those outcomes. As a result a reductionist simplified and decontextualised version of reality replaces a “complex, multifaceted reality of intersecting aspects embedded in rich contexts” (Grbich, 2007:230).

Ultimately it is not the inanimate package that should be a source of concern, rather the over reliance or blind use of the functionalities that the software provides. As one who has done qualitative analysis without software in the past, the major advantage of the software was the ability to store the material and have both the extract and the entire transcript instantly accessible.

4.7.1.2 Preliminary data analysis

Preliminary data analysis was conducted as each piece of data was gathered. This early phase of data analysis was a simple process of checking the data, highlighting emerging issues, identifying areas for exploration, and reviewing where the information collected was leading. This ongoing process of summarising and identifying further questions is part of ensuring holistic data (Grbich, 2007:16).

With regard to the interviews, two kinds of questions were used to explore the data. Firstly questions that focused on the circumstances of the interview: who was the interviewee; when was this interview conducted; how long did the interview last; where was the interview conducted and what contextual issues might have impacted on the data? The second kind of questions was those that focused on the text: what are the major issues that are emerging and what issues need further exploration or action? After every two to three interviewees' data were reviewed on the basis of the questions set out above. Emerging issues were grouped into potential themes so that preliminary data analysis was interwoven with further data gathering. This iterative approach allowed me the opportunity to explore factors that might not have been considered central to my initial research questions (Grbich, 2007:30).

Once this dual process of preliminary data analysis and data gathering had been completed the formal process of coding and thematic analysis began.

4.7.1.3 Analytic approach

An underlying assumption within my analytic approach was that no ideal (or even correct) state of practice or understanding exists and that I had to allow reality to emerge as authentically as possible. As a result I opted to broadly follow a constructivist grounded approach to theory generation.

Within grounded theory the Glaserian approach emphasises theory generation as opposed to the Straussian approach that emphasises theory verification (Grbich, 2007:72). Another difference between the two is the approach to coding, where Strauss held to a procedural approach with three distinct stages of coding (Grbich, 2007:72). Glaser on the other hand has an approach that is:

closer to a more meticulous version of the form of preliminary data analysis...followed by a grouping of emerging categories derived from empirical data which are then combined with a close reading of relevant literature in order to facilitate the constant comparative process of indicator to concept (Grbich, 2007:72).

Charmaz has contributed the concept of ‘constructivist grounded theory’ as an alternative approach to the more objectivist approach of Strauss and Corbin (Creswell, 2007:65). The key difference is whereas objectivist grounded theory considers data as separate from both researchers and participants and applies rigorous methods to provide theoretical understanding, grounded constructivists “assumes an obdurate, yet ever-changing world but recognises diverse local worlds and multiple realities, and addresses how people’s actions affect their local and larger worlds” (Charmaz, 2006:132).

In order to recognise these local worlds and multiple realities I followed a process of coding that allowed complex and multiple realities to emerge.

4.7.1.4 Coding

Prior to the start of coding the data were read and reread carefully. Multiple methods of coding and analytical approaches were employed to enhance the accountability as well as the depth and breadth of the findings (Mello, 2002:236).

Two coding cycles are described in this section, although each cycle was characterised by more than one coding session per data source.

- *First cycle coding*

The purpose of first cycle coding is content analysis:

Content analysis is a systematic coding and categorising approach which you can use to unobtrusively explore large amounts of textual information in order to ascertain the trends and patterns of words used, their frequency, their relationships and the structures and discourses of communication...The researcher's creation of coding frames highlights certain aspects of the text, providing the reader with one particular view, but other views are possible and different researchers may achieve varying results because of different protocols developed and imposed (Grbich, 2007:112).

Saldana (2009:46) lists seven categories of first cycle coding methods. Of these I employed three categories: grammatical methods, elemental methods and, in some cases, exploratory methods.

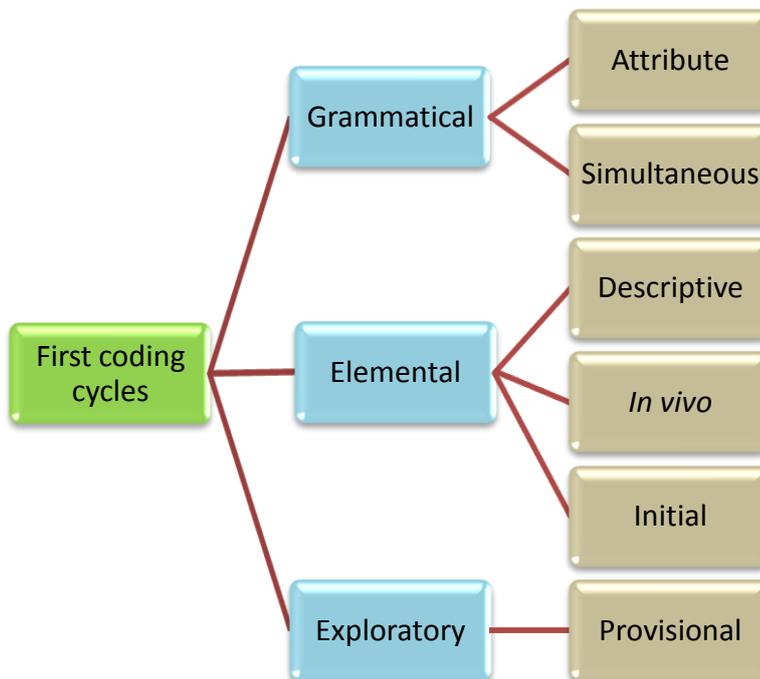


Figure 4-7: First cycle coding methods used in this study

Grammatical methods do not refer to the grammar of language but rather to the grammar principles of a technique (Saldana, 2009:55). Two grammatical methods were used: attribute coding and simultaneous coding. Attribute coding is also called setting or context codes as these codes capture essential information about the settings and the demographic characteristics of the participants. Attribute coding is particularly useful in this study as there were multiple participants and settings, as well as a wide range of data forms (interviews, workshops, documents etc.)

Simultaneous coding, the second kind of grammatical methods used, refers to the “application of two or more different codes to a single qualitative datum, or the overlapped occurrence of two or more codes applied to sequential units of qualitative datum” (Saldana, 2009:62). Simultaneous coding was useful in this study as there were numerous instances where multiple meanings were represented in the data. The use of attribute coding and simultaneous coding within NVivo allowed me to generate interrelationships, associations and links between multiple interpretations of the text.

Three elemental methods were used in the first cycles: descriptive coding, *in vivo* coding and initial coding. Elemental coding methods are “primary approaches to qualitative data analysis” (Saldana, 2009:66) and form the foundation for future coding. The first of the elemental coding methods used was descriptive coding.

Descriptive coding summarises the basic topic of passages of data. The alternative term – topic coding – describes the method better as the codes do not capture the content or substance of the text but rather the topic. Descriptive coding was useful in this study to lay the groundwork for further coding over the wide variety of data forms. Owing to the large volume of data and the need for specificity (e.g. views of public health professionals as opposed to medical practitioners) more detailed subcodes were assigned.

In vivo coding is described as “in that which is alive” (Saldana, 2009:74). This method of coding uses words or short phrases from the actual narrative as the code. These participant-generated codes are useful in action research as the voices of participants are prioritised. All of the *in vivo* coding took place during the process of initial coding.

The final elemental method of coding was initial coding (also known as open coding). This was also the coding method that I used most widely as the starting point of coding during the first cycle. Initial coding breaks down qualitative data “into discrete parts, closely examining them, and comparing them for similarities and differences” (Strauss & Corbin, 1998:102). The goal of initial coding is to allow the data to show all possible theoretical directions and to allow the researcher the opportunity to reflect on the contents of the data (Charmaz, 2006:46). Codes generated using this method were considered to be provisional and tentative and in later readings of the texts some codes were renamed, some were combined with others and some were left intact.

Only one form of exploratory methods was used – that of provisional coding. Provisional coding is determined prior to the reading of the data or, in most cases, prior to fieldwork. The provisional codes can be determined by literature reviews, a conceptual framework, research questions and prior knowledge (Saldana, 2009:120). This form of coding was only used in the analysis of the block books.

Not each data source was approached in an identical fashion (although all components of data sets, such as block chair interviews, were coded using a consistent coding method). These coding decisions were based on the methodological needs of the study and are described as “pragmatic eclecticism” by Saldana (2009:46).

Saldana (2009:49) recommends *in vivo*, process, initial, (first cycle coding) and focused, axial and theoretical (second cycle coding) methods when developing new theories. I did not use process (first cycle coding) or focused (second cycle coding) methods.

- *Second cycle coding*

Saldana (2009:46) names six methods of second cycle coding methods: pattern coding, focused coding, axial coding, theoretical coding, elaborative coding and longitudinal coding. Of these three were used in this study: pattern coding, axial coding and theoretical coding.

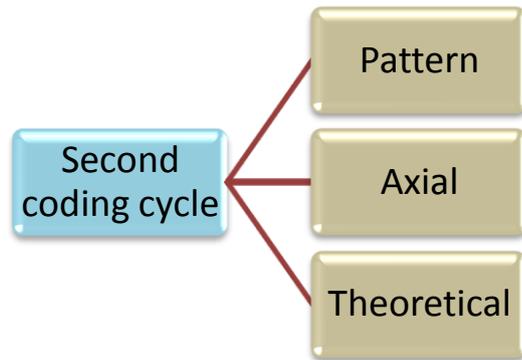


Figure 4-8: Second cycle coding methods used in this study

Pattern coding is explanatory in nature and is particularly useful for developing major themes from the data as well as exploring explanations. Through these processes of coding and comparison the concrete can be overcome and the identification of patterns of similarity and differences allows the data to be transcended (Ten Have, 2004:142).

Axial coding allows the researcher to reassemble data that was fractured during the first cycles of coding by relating “categories to subcategories [and] specif[ying] the properties and dimensions of a category” (Charmaz, 2006:60). This method of coding is especially useful when working with a wide variety of data forms. By sorting and grouping similarly coded data the number of codes from the initial coding are reduced while the new groups are more conceptual in nature. The chief goal of axial coding is to achieve saturation. Saturation is described by Strauss and Corbin (1998:136) as “when no new information seems to emerge during coding, that is, when no new properties, dimensions, conditions, actions/interactions, or consequences are seen in the data”.

Theoretical coding “covers and accounts for all other codes and categories formulated thus far in grounded theory analysis” (Saldana, 2009:163). It is common that a central category is identified as the primary theme of research, but this is not obligatory, especially from a postmodern perspective that embraces complexity. Rather:

we need to address head-on the inconsistencies, irregularities, and downright messiness of the empirical world – not scrub it clean and dress it up for a special occasion of a presentation or a publication (Clarke, 2005:15).

During theoretical coding I could conceptualise how the substantive codes relate to each other in the generation of theory. This systematic method moves the description from personal impressions to a theory, despite the idiosyncratic nature of thematic analysis.

Data were grouped and regrouped both within a single source as well as over multiple sources in order to consolidate meaning. In this way features of interest were foregrounded and the emerging theories of practice came into clearer focus.

I was mindful in the analysis that the codes should not be regarded as variables that can be measured in terms of frequency of occurrence, as this can lead to inappropriate conclusions from the data:

The emphasis in qualitative research on diversity, non-representativeness, small numbers, minimal stratification, self-selection and thick ethnographic description suggests that drawing quantitative from qualitative data is contraindicated and that such a transformation produces unrealistic versions of the original (Grbich, 2007:233).

Rather than the quantity it was the qualities of the codes that were of primary interest. Knowledge constructed in this incremental accumulative manner built up to a complex theory of practice and multiple understandings that emerged in writing this living theory.

- *Analytical memos*

“Memos are sites of conversation with ourselves about our data” (Clarke, 2005:202). These written conversations can be related to the “participants, phenomenon or process” (Saldana, 2009:32). Although I wrote analytic memos throughout working with my data, the majority were written during initial coding (first cycle) and during axial and theoretical coding (second cycle). Some, but not all, were written using the feature for memo writing in NVivo 8.

This section has described the general approaches to data analysis, but some methodological choices had to be made with regard to the approach to the document reviews that are outlined in the next section.

4.7.1.5 Specific approaches to the document reviews

Documents represent “events, objects, persons, ideas, whatever, and make their aspects or features available for consideration in the same or a different context” (Ten Have, 2004:89).

When one is reviewing documents there is one particular choice that needs to be made – the choice of whether to review documents from a ‘factist’ or a ‘specimen’ perspective. A ‘factist’ perspective is that which views the document as evidence of happenings elsewhere – an external reality – while a ‘specimen’ perspective focuses on the document itself, the way the text is constructed, for example (Ten Have, 2004:8). In this way the documents are used as a ‘resource’ from a ‘factist’ approach and not as a ‘topic’ from a ‘specimen’ approach (Ten Have, 2004:8). My choice of a ‘factist’ approach was informed by the primary research purpose which was to gain insight into the inclusion of public health in the medical curriculum without having to attend every lecture, bedside consultation or community visit.

- *Block books*

Block books are the study guides designed for student usage that outline both the academic and administrative aspects of the block. Electronic copies of the block books (2010) were coded and analysed using NVivo 8 software. The 2010 block books were used as they predate any of my interviews with the block chairs. I used a provisional coding method to code all inclusions that relate to public health. The choice of the codes was informed by the internal structure of the SHSPH that has five primary tracks which represent the specialties/disciplines of public health:

- Health promotion;
- Disease control;
- Epidemiology and biostatistics;
- Health policy and management; and
- Environmental and occupational health.

Three additional codes were added: primary health care (PHC), social accountability (SA), and health economics. PHC was added as a reflection of the emphasis placed on this by

the Health Professions Council of South Africa (HPCSA). Similarly social accountability was added as social accountability shares the same four cardinal values as public health. Health economics was elevated as a separate code for two reasons. The first is that medical economics performed the worst amongst the public health topics in the American graduate questionnaire – 62.7% were of the opinion that instruction was inadequate (Maeshiro *et al.*, 2010:214). The second reason is that health economics although a separate golden thread in our university is usually considered to be part of public health (as part of health policy and management). For this reason health economics was simultaneously coded as health policy and management. None of the other golden threads such as ethics, professional attitudes or teamwork were coded or included in this analysis.

This analysis of the block books was informed by a similar study done at the University of Stellenbosch (US), where evidence of public health, evidence-based medicine and health systems were examined. Although the interest in exploring the medical curricula for public health is common between the US and UP, the internal differences required different approaches. In particular, in the UP study I coded not only any learning outcomes or objectives related to any public health topic, but expanded my search to include any mention of public health topics in the introduction in the block book and any case studies. My reasoning was that the introduction to the block contains the philosophy and intentions of the block. Case studies were not included *per se* even though the case might hold potential for learning in public health. Case studies were only included when the accompanying questions clearly required the application of public health knowledge and skills.

What is important to note is that choices had to be made on where to allocate certain items, as some could have equally validly been coded as belonging to two codes. In all cases the context was taken into account, and although other coders might make other choices, it was not the density of coding rather the expression of public health in the curriculum (as recorded in the block books) *overall* that was of primary interest.

While this approach was broader than the US study, the UP study also coded the verbs used in these public health inclusions in the text with Bloom's taxonomy used in a similar fashion to the US study. As a general rule any intention that was expressed in the

outcomes or objectives in the block that was not accompanied by a verb, was automatically coded at the lowest level of Bloom's taxonomy. Bloom's taxonomy of educational objectives is "a framework for classifying statements of what we expect or intend students to learn as a result of instruction" (Krathwohl, 2010:212). Although this taxonomy has since been revised (Krathwohl, 2010:212), the original Bloom's taxonomy for the cognitive domain was used, as this was the version used by the US study.

The evidence of PHC, SA, and health economics was coded as being included or not, as these inclusions are more of a contextual nature and, together with the other codes, has been visually mapped out as a curricular map in Chapter 6 (Section 6.3.2).

It must be recognised that only information that was explicit in the text of the block books could be coded and that this analysis, although useful, is a weak reflection of the actual practice in the lecture halls, clinics, hospitals and community settings. The reason for this is that despite the advantage of documents that can transcend time and space there is a weakness in that the block books were written with an original purpose and context that did not include their use as research data.

4.7.2 Quantitative data

4.7.2.1 Use of software

Small amounts of data from activities such as the online student needs survey (2011 and 2012) were analysed using the inbuilt Survey Monkey software programme. The data were exported to Microsoft Excel to enable further analysis.

The larger amounts of data generated by the survey of MBChB I-V students (2012) were entered into EpiData 3.1 (Lauritsen & Bruus, 2004). Data were reviewed and cleaned by myself and Dr Majake independently. Decisions to remove records (in the case of questionnaires that only contained year of study and type of degree) or to recode variables (e.g. respondents who did not attempt the 'test your knowledge' section were recoded to 'missing') were made and recorded in a document that contains all the decisions relating to the data.

A detailed analysis plan was developed independently by myself and Dr Lehlohonolo Majake who was a co-researcher in this phase of the study.

4.7.2.2 Analysis of quantitative data

Descriptive data analysis (proportions and means) was done independently by both myself and Dr Majake using EpiAnalysis version 2.2 (Lauritsen, 2008) as the activity was also a learning opportunity for Dr Majake. Data were then exported to the Stata 12 (Statacorp, 2011) software package, and inferential analysis was done with the assistance of a colleague, Dr Janine Wichmann. The questionnaire contained both nominal data (e.g. gender) and ordinal data (e.g. satisfaction scale). Nominal data is data that is mutually exclusive but not in an ordinal class as opposed to ordinal data that is both mutually exclusive and in ordered classes (Maree & Pietersen, 2007:148). The independent variables were year of study and gender. The Fisher's exact test or chi-square test (χ^2) was used to test the association between the categories.

4.8 Ensuring quality

Ensuring the quality of the data is fundamental to any research endeavour. In this section the measures to ensure the quality of the qualitative data are followed by a description of the measures taken to ensure the quality of the quantitative data. The section ends on a brief description of the measures taken to ensure the quality of the emergent living theory.

4.8.1 Ensuring quality in the qualitative methods: credibility, dependability and transferability

Credibility, dependability and transferability (or confirmability) substitute internal validity, reliability, external validity and objectivity used in quantitative research (Merriam, 2009:211; Schwandt, 2007:299).

4.8.1.1 Credibility

In order to conclude that the findings are credible, the question is asked whether the findings match reality. Maxwell (as cited in Merriam, 2009:214) describes validity or truthfulness as:

a goal rather than a product: it is never something that can be proven or taken for granted. Validity is relative. It has to be assessed in relationship to the purposes and circumstances of the research, rather than being a context-independent property of methods or conclusions.

Strategies to increase the credibility of findings are crystallisation; member checks; adequate engagement with the collection of data; and reflexivity.

- *Crystallisation*

Validity and reliability of the research is strengthened by the use of crystallisation (more than one source of data that indicate the same findings) and appropriate data gathering strategies and analysis methods. Crystallisation relies on information from a range of settings and individuals with the use of a variety of methods and is used by researchers to check the extent to which conclusions based on qualitative perspectives are supported by quantitative measures and *vice versa* (Nieuwenhuis, 2007:80). The data gathering strategy set out in Table 4-2 describes the multiple sources of data that were enriched by additional activities (public health elective and the medical student survey).

- *Member checks*

Transcriptions were sent to the interview participants to ensure that the transcription was an authentic reflection of the interview. Participants were invited to not only comment on the accuracy of the text but to add any subsequent thoughts or insights.

- *Adequate engagement with data gathering*

Adequate engagement with the data gathering is viewed as adequate because of the number of interviews, the variety of the data gathering methods and the search for data that supports alternative explanations. The description of the data gathering methods (Sections 4.6.3 to 4.6.11) supports the claim to adequate engagement with the gathering of data. A second claim to adequate engagement with data gathering is the saturation of the data.

- *Reflexivity*

The *Sage Dictionary of Qualitative Inquiry* (Schwandt, 2007:260) describes reflexivity as a process of critical self-reflection that has as its subject the biases, preferences and theoretical predisposition of the researcher. This reflexive subjectivity is part of the construction of knowledge and is, in a sense, the objectivity of the self as it:

involves a heightened awareness of the self in the process of knowledge creation, a clarification of how one's beliefs have been socially constructed and how these values are impacting on interaction, data collection and data analysis in the research setting (Grbich, 2007:10).

Lichtman (2010:122) describes two ways of being reflexive. The first is the acknowledgment of the role of one's self as the researcher and the biases that can affect the research. Second is an acknowledgment that the researcher is an instrument that shapes the research and creates meaning, but is in turn shaped by the research including the participants.

Reflexivity is an important procedure to establish the validity of accounts. In this methodological use reflexivity is used to critically review the research process, the research participants and finally the self to see how personal and theoretical commitments "serve as resources for generating particular data, for behaving in particular ways *vis-a-vis* respondents and participants, and for developing particular interpretations" (Schwandt, 2007:260).

As a person who confesses that she can only think when she speaks, my reflexive subjectivity found informal expression through the countless conversations with my promoter, my critical readers, my SAFRI colleagues, my work colleagues, colleagues at conferences, my doctoral support group and frankly any-one who would listen. These conversations clarified over time and ultimately found more formal expression in the written reflections that culminated in Chapter 9. Some of this emergent thinking and interim findings of my research were presented for the critical review of peers at a number of national conferences.

4.8.1.2 Dependability

The characteristic of whether the results are consistent with the data collected is called “dependability” or “consistency” (Merriam, 2009:221). Four strategies are associated with increasing the dependability of the findings: crystallisation, reflexivity, peer examination and an audit trail. Crystallisation and reflexivity have been described previously (Section 4.8.1) as part of the strategies to enhance credibility of the findings and peer examination or peer review has described at various points in this chapter. The final strategy to enhance the dependability of the findings is the audit trail that was kept updated.

4.8.1.3 Transferability

Transferability replaces the concept of external validity that is used in quantitative research. This external validity is a measure of the “extent to which the findings of one study can be applied to other situations” (Merriam, 2009:223). The selection of a small non-random sample in qualitative research is specifically to “understand the particular in depth, not to find out what is generally true of the many” (Merriam, 2009:224).

The role of the researcher in qualitative research is to provide sufficient data to enable another researcher to apply the findings. This data – such as the detailed description of the sample, setting, and results – must be an adequate description so that other researchers can determine if their own settings are comparable (Hanson, 2011:380). It is this feature of transferability that makes comparisons with the notion of generalisability used in quantitative research so problematic. While qualitative research requires the reader to make a judgement of whether the findings are transferable to their particular

context (or not), quantitative research relies on factors such as sample size to ensure that the results can be generalised.

Strategies used to enhance transferability are rich, thick description in the findings and the selection of the study sample so that maximum variation is achieved.

Transferability is also called generalisability in the practitioner-research literature and it is not solely these practitioner's accounts that are the source of the generated theory but rather the description and explanation of the relationship that exists between the accounts and practice. Despite the obvious individual nature of living theory there is still potential for generalisability as "the 'general' in a living theory still refers to 'all' but instead of being represented in a linguistic concept, 'all' refers to the shared form of life between the individuals constituting the theory" (Whitehead, 1989:6).

The principle of plural structure described by Winter and Burroughs (1989:62) supports the construct that others find significance in the work and that the task of the writer is to use a similarity of structure that enables the reader to find the points of contact. In this way the reader finds the significance and, by so doing, the work becomes generalisable to a wider audience and transcends the parochial.

These criteria of credibility, transferability, dependability and confirmability are used to ensure the trustworthiness of the claim (Morse, Barrett, Mayan, Olson & Spiers, 2002:15).

4.8.2 Ensuring quality in the quantitative methods: validity, reliability and generalisability

4.8.2.1 Validity

Validity or accuracy is described as how close a study finding is to the truth (Joubert & Ehrlich, 2007:156). Errors or biases that affect the validity of studies can be either random or systematic. Common reasons for invalidity are selection bias, information bias and confounding. As this study only used a cross-sectional research design only the associated types of bias and the measures taken to avoid or moderate the effect are reported in Table 4-5.

Table 4-5: Steps taken to ensure the validity of the data

Factor	Threats	Steps taken
Validity	Selection bias or systematic sampling error	Random selection of the participants was not possible and to compensate a large as possible number of participants was included.
	Information bias or systematic measurement error	In order to ensure that variables are measured in the same way, the questionnaire was field tested for clarity of language before use.
	Confounding bias or confounding	No confounders were identified in this cross-sectional study.

4.8.2.2 Reliability

Reliability, repeatability or precision refers to the “degree of similarity of the results obtained when the measurement is repeated on the same subject or the same group” (Joubert & Ehrlich, 2007:117). The threats to the reliability of the cross-sectional study and the steps taken to avoid or moderate the effect are reported in Table 4-6.

Table 4-6: Steps taken to ensure the reliability of the data

Factor	Threats	Step taken
Reliability	Random sampling error	Used large sample size
	Random measurement error	Used standardised questionnaire as basis Questionnaire reviewed for clarity and sequencing of questions

4.8.2.3 Generalisability

Generalisability to a wider audience was not a key concern of this study. What was of interest in this study were the opinions of *our* medical students, at *our* university, about *our* curriculum. If generalisability was a desired characteristic then a high degree of external validity would be required. This could have been achieved by doing a random sample of

all South African medical students in order that findings would be representative of the larger population of medical students (Van der Stoep & Johnston, 2009:26).

4.8.3 Ensuring meta-quality in living theory: critical readers, validation group, and standards of judgement

Ensuring the quality of qualitative and quantitative methods is further enhanced by taking a more encompassing view of quality from a meta-stance. This more abstract perspective I have called 'meta-quality' to distinguish it from the more procedural perspective that views quality of the research methods primarily from either a qualitative or quantitative perspective.

The meta-quality of this living theory was enhanced through three specific strategies:

- The use of critical readers;
- The use of a validation group; and
- The creation and application of standards of judgement.

4.8.3.1 Critical readers

From the onset this research has been collaborative not only in some of the activities undertaken but, more importantly, by engaging in critical debates. The validity of my knowledge claims was tested by others by engaging in critical debates about the research questions, the procedures followed and the conclusions reached. Critical readers and a more widely constituted validation group were used for this purpose.

Four critical readers were used in the protocol development process and of these original four, two continued as critical readers to the end. The third critical reader changed her role and her talent as an editor and was used in this more official role. The fourth critical reader – the then-medical student who provided the spark for the research – could only participate intermittently and another critical reader was added to ensure a broad range of perspectives.

4.8.3.2 *Validation group*

Whitehead and McNiff (2006:159) describe the work of the validation group in that they “listen to you, scrutinize your data and evidence, consider your claims to knowledge and offer critical feedback”. This process also forms part of the evidence of methodological rigour. The role of the validation group is both formative and summative, as they judge the work against the standards of judgement that have been set.

The validation group consisted of one SHSPH workshop participant and colleague; a family medicine practitioner no longer employed by the university and an ex-colleague. The validation group only met once for three hours during the later stages of the research.

4.8.3.3 *Standards of judgement*

Articulating criteria and standards of judgement are the foundations of providing evidence as opposed to providing an illustration or anecdote (Whitehead & McNiff, 2006:104).

As a practitioner it is essential for me to be confident of the validity of my own perspective and my claims to knowledge in the light of public validation. This is based on my own critical reflection and is what Polanyi refers to as *personal validity*, which is:

the importance of an individual’s responsibility for their own personal knowledge in the sense of having made a decision to understand the world from their own point of view as a person [personal in original text] claiming originality and exercising their judgement responsible with universal intent (Whitehead, 2008:6).

Personal reflection and self-evaluation were the first steps to presenting my work to the scrutiny of others – specifically the critical readers and the validation group. The process of these readers judging the reasonableness of the claims against the criteria and standards of judgement is one that results in the establishment of *social validity*. Habermas (as cited in Whitehead, 2008:8) describes four criteria against which to judge the social validity of a claim:

- Uttering something understandably;
- Providing (the hearer) with something to understand;

- Making himself thereby understandable; and
- Coming to an understanding with another person.

Criteria such as these outlined by Habermas are useful in that they highlight ways of reaching intersubjective agreement. But these are by no means the only possible criteria and in order to resist universalism, each living theory researcher needs to – together with others – develop his or her own criteria.

In order to ensure democratic evaluation – so that judgements are made on the methodological rigour and epistemological integrity in their own right – and a shared commitment to the process, it is necessary that the validation group members need to speak in a manner that what is said is (Whitehead & McNiff, 2006:102):

- Comprehensible (language used is commonly understood by all);
- Truthful (can be recognised as true accounts and not fabrications);
- Sincere (all can trust what the other says); and
- Appropriate for the context while recognising the cultural norms in which their discourses are embedded.

The validation group endeavours to communicate in this way and can be led by questions from frameworks such as Whitehead (1989:5) in the pursuit of establishing validity:

- Was the enquiry carried out in a systematic way?
- Are the values used to distinguish the claim to knowledge as educational knowledge clearly shown and justified?
- Does the claim contain evidence of a critical accommodation of propositional contributions from the traditional disciplines of education?
- Are the assertions made in the claim clearly justified?
- Is there evidence of an enquiring and critical approach to an educational problem?

While useful as a point of reference this established framework is only one resource that, together with the original contribution of self and others, constructs a more holistic basis for validation of the claims by others. In this way alternative questions which elevate non-systematic, imaginative and innovative inquiry can be imagined rather than questions that pursue the solution to problems.

4.9 Delineations and limitations

The delineations of this work are configured by time, space and the field of public health. This research was conducted at a particular point in time (2010-2013) at the University of Pretoria and focuses only on my educational practice and understanding of the facilitation of learning about public health within our medical curriculum. A final delineation is that this is an appreciative enquiry and not an accusatory inquiry (Konstant, 2010:269) and, as such, comparison with ideal or alternative models of learning about public health was considered as being beyond my remit.

Within this delineated scope of the research several limitations can be identified. These methodological limitations were: the small number of participants in the SHSPH workshops; that it was not possible to draw a random sample from the medical students for the medical student survey; and a possible selection bias as to which medical students were at class on the days of data gathering. An additional limitation is the ten-item 'test your knowledge' questionnaire that because of its small sample size is not reproducible (precise, reliable, generalisable) or valid. This limitation could have been overcome by increasing the number of test items, as reliability indices such as the coefficient alpha increase as test length increases. Reliability indices indicate the expected strength of the relationship between "the scores actually observed on the test and the scores that would be observed on retesting with tests covering similar but not identical content" (Holtzman & Swanson, 2012:108).

Lastly my biases and assumptions form additional limitations. In Chapter 3 I shared my personal landscape that influences my worldview and my professional practice that are sources of bias. My assumptions in this research have been that exploration of the facilitation of learning of public health in our curriculum is part of promoting social and personal accountability and that this research is a social good. My second assumption has been that this research would be considered as non-threatening to both the School of Medicine and the SHSPH as the research is practitioner based. My final assumption has been that in order to practise in an authentic manner I need to have a firm personal construct of public health in the whole medical curriculum, not only in the blocks where I am directly involved.

4.10 Conclusions

This chapter set out the framework of methodology that was intended to establish the legitimacy of this enquiry. It is through this methodology of action research living theory that I hoped to realise the potential of transformed professional understanding, educational practice and educational leadership, and to “show that the impermanent and imperfect state of [my] theorising is better than resting in a place of propositional finality” (Whitehead & McNiff, 2006:40).

In order to demonstrate the legitimacy of my claims to transformed professional understanding, educational practice and educational leadership the chapter has described the research path followed. The chapter started with a detailed description of the research participants, the research context, as well as the ethical considerations and fiduciary care that characterised the relationships during this research.

The chapter then described in detail the multiple methods used to gather data about my professional practice, my meta learning and my validation processes. The analyses of the qualitative and quantitative data are described in detail before the final section.

The final section of the chapter outlined the steps taken to ensure the quality of the data both at a methodological and a more abstract or meta level. The chapter ended with an account of the delineations and limitations of the study.

This detailed description of my research methods has simultaneously established both the boundaries of the research and the grounding for the next chapter, Chapter 5: Origins and Understanding.

5 CHAPTER 5: ORIGINS AND UNDERSTANDING

5.1 Introduction

In this chapter on Origins and Understanding, I present the first of three chapters that report the findings of my professional activities. Together with Chapter 6: Intentions and Aspirations and Chapter 7: Strategies and Exploration, this chapter seeks to promote rich understanding of the complexity that is an unavoidable aspect of my educational practice.

These next three chapters are the ‘patchwork quilt’ that results from my efforts in assembling multiple images of reality into a pattern. Denzin and Lincoln (2008:5) refer to this role of the researcher as a maker of quilts or *bricoleur*. The process of writing these chapters is an interpretative practice that juxtaposes images or superimposes them on one another so that a picture is created (Denzin & Lincoln, 2008:6). This process of crafting a quilt is similar to the combining of a series of images into a montage. “The underlying assumption of montage is that viewers perceive and interpret the shots in a ‘montage sequence not *sequentially*, or one at a time, but rather *simultaneously*” (Cook as cited in Denzin & Lincoln, 2008:6).

Regehr (2010:36) maintains that simplicity is not possible because of the complexity of the inter- and intra-connectiveness of authentic experience. For this reason and in order to aid in the navigation of the three chapters that together share the research findings, I have used a simple navigational tool. The compass icon is used to suggest points of connection between ideas (Figure 5-1). These points of connection are not discussed in the findings chapters but serve to plot the shape of the comments made in Chapter 8: Theorising Practice.



Figure 5-1: The compass icon

The use of this navigational tool and other forms of data display in the chapters to follow are characteristic of postmodern forms of display that “incorporate irony, playfulness, illusion, pastiche and parody; an emphasis on improvisation and satire targeted to others as well as the self; and the use of a variety of visual, textual and other genres” (Grbich, 2007:11).

These three results chapters do not intend to provide any propositional answers on how to facilitate learning about public health among medical students but rather, by remaining in dialectical uncertainty, these chapters intend to contribute to building the tension in this educational discourse. Because:

major discursive shifts do not flow from single individuals, organizations, or reports – they are more like earthquakes, resulting from tensions built up incrementally. Finally, a significant shift takes place, releasing the pressure but also changing the landscape – the final form of which is hazy until the dust settles (Hodges, 2010:S43).

The tensions in this research start with this Chapter: Origins and Understanding which opens with a brief description of the research participants’ characteristics before the research findings are embarked on.

Next, the international experts’ historical perspective as the origins of our current reality is described. The chapter then describes four perspectives – what medical students; block chairs; the staff of the School of Health Systems and Public Health (SHSPH) and the global community of public health practitioners understand as public health.

I use thick description in the form of verbatim contributions from the participants in order to ensure a rich, authentic and multifaceted understanding of public health. In this way I allow my authority as researcher to slip away so that my voice in the text is largely “replaced by the voices of participants, voices from other texts, or [my] own ‘I/eye’ speaking in [my] own right” (Grbich, 2007:13). The people behind these voices are introduced next.

5.2 Response rates and characteristics of the participants

Four distinct groups of people participated in this research. The first group comprises the medical students from various year groups and from various phases of the research. The second group is made up of the representatives from the School of Medicine; i.e. the block chairs, including the vice-dean of medicine. The third group consists of the academic staff from the School of Health Systems and Public Health (SHSPH). The final group is made up of the group of external participants: a representative from the community partner organisation and the international and national experts. As my focus has always been on the students in my care (the first group), their contributions are afforded precedence.

5.2.1 The medical student respondents

Within this group of medical student respondents there are three sub-groups: those who participated in the paper-based survey; those who participated in the online Survey Monkey questionnaire in 2010 and 2011; and the third-year medical students who participated in the elective. The data gathering during the paper-based survey (Chapter 4, Section 4.6.6) and both web-based surveys (Chapter 4, Section 4.6.7) have already been described in detail. The data gathering among the participants of the 2012 elective is discussed in Chapter 7 (Section 7.4.4.6).

The total population of medical students in 2012 was 1 192 and, among those, 589 students participated in the paper-based survey with an overall response rate of 49.4%.

Table 5-1: Gender profile and year of study of survey respondents

Year group	Population size	Completed Questionnaires	Males (n)	Females (n)	Missing (n)	Response rate
First	243	141	55	80	6	58.0%
Second	250	179	56	123	0	71.6%
Third	231	60	16	44	0	25.9%
Fourth	243	99	38	61	0	40.7%
Fifth	225	109	29	80	0	48.9%
Total	1 192	588*	194	388	6	49.4%

*One respondent did not indicate his year of study so was not included in this table.

The high participation rate among the second-year medical students is a reflection of the data gathering techniques (Chapter 4, Section 4.6.6) as the survey formed part of the activities of SMO 211 prior to the start of the special study module. In the paper-based survey the year of study was an essential variable to include, as the questionnaire explored educational experience to date. Similarly we considered it important to collect data on the respondents' gender in this survey, as it is possible that the different genders engage with the various forms of social media to a different extent. Neither of these demographic variables was considered important in the two web-based online surveys that third-year medical students were invited to complete (Chapter 4, Section 4.6.7) or the online survey that the elective participants ($n/N=5/6$) completed (Chapter 7, Section 7.4.4.6).

Almost half of the entire third-year cohort (47.9%; $n/N=113/236$) of medical students accessed the online survey in 2011. Of these, 106 completed the survey (93.8%), which represents an overall response rate of 44.9%.

In 2012 a similar proportion (42%; $n/N=98/232$) of the third-year medical students accessed the online survey. Of these, 88 agreed to participate in the survey (89.7%), which represents an overall response rate of 37.9%.

5.2.2 The block chair interviewees

The data gathering during the individual interviews conducted among the block chairs is described in detail in Chapter 4 (Section 4.6.4). Table 5-2 provides an overview of the demographic characteristics of the ten clinicians who participated.

Table 5-2: Profile of the respondent characteristics (Block chairs from the School of Medicine)

Participant code	Age in years				Years of service		Male	Female	UP alumnus
	30-39	40-49	50-59	60+	6-10	>10			
BC1			*		*		*		*
BC2			*			*	*		*
BC3	*				*			*	*
BC4		*			*		*		
BC5		*					*		*
BC6			*			*	*		*
BC7			*			*		*	*
BC8				*		*	*		*
BC9			*			*	*		*
BC10		*				*	*		*
	1	3	5	1	3	6	8	2	9

The years of service for respondent BC5 were not recorded at the time of the interview and no response was received to a follow-up e-mail. The majority of the block chair respondents are male (n=9); between 50 and 59 years of age (n=6); with at least ten years of experience (n=7) and are University of Pretoria alumni (n=9).

5.2.3 The School of Health Systems and Public Health (SHSPH) participants

The demographic details collected from the SHSPH workshop participants show that among the five participants, one person was a joint appointment with a provincial department of health (usual for clinical staff) and a professor. The rest were senior lecturers with university appointments. Only the professor was not an alumnus of our university, the rest having either completed undergraduate or postgraduate studies (or both) within our university. Only two participants had more than five years' experience within our School. Among the five participants only one was not a public health medicine (MMed) specialist but has a Master of Public Health degree. As anonymity cannot be assured in such a small group the demographic data is not presented in a table with the participant identity codes. The following codes were allocated at random: PH1, PH2, PH3, PH4 and PH5.

5.2.4 External participants: the community partner and international and national experts

The representative from the community organisation that was the host for the 2012 public health elective is female and younger than 40 years of age (respondent code: Sediba12/manager). All three experts were older than 55 years and are male. All are medical or public health specialists. The codes IE1 and IE2 were allocated to the international experts and the code PH6 was allocated to the national expert.

The international experts in particular lay the foundation for the three findings chapters and from the very start the tensions that Hodges (2010:S43) refers to are built on one particular foundation – the origin of public health.

5.3 Continental drift

The question posed to the international experts on the inclusion of public health in the medical curriculum was: ‘So how do you see the role of public health schools in social accountability in medical education?’ The discussion on the envisaged role of public health led to the first reference to a professional divide between public health and medicine. The theme – continental drift – was so named to represent the split between public health and medicine that is akin to the great continental drift that drove the continents apart.

The split between public health and medicine was based on the decision made in 1915 (the Welch-Rose report) that resulted in ever-increasing distance between the two disciplines (Fee & Bu, 2007:977). This split “*works against integration and it works against public health – meaning not just a specialty or discipline but being a philosophy*” (IE1). This initial split “*might have been one of the tragedies of the 20th Century...was that schools of public health and medical schools diverged in the first place at the beginning of the century*” (IE2). This split “*became so profound that it’s almost seen as a natural event*” (IE2).

This division between public health and medicine has become increasingly problematic so

that now we need to “*overcome the fragmentation in the health system because...[it] is not helping us at all*” (IE1). This comment is noteworthy, as the participant has equated the fragmentation in the health system with the fragmentation between public health and medicine.

Public health holds the potential to straddle the great divide between individual health and population health in that it has a “*more comprehensive view and [can] reduce the fragmentation*” (IE1). This potential role of reducing the distance is hampered by the broad definition of public health so that, although we can agree “*public health is important...but what is it? Is everybody able to contribute to public health – so we think it is everybody’s task*” (IE1). In our efforts to repair the division it is important not to “*consolidate the rupture of the fragmentation*” (IE1).

Features that maintain the division are “*schools of public health on the one side and medical schools on the other side and even if we have a community health department or public health or within the medical school, to me, it causes us some headaches because then the other medical disciplines will say that is not our business...[it is] taken care of by somebody else*” (IE1). But this division is a direct result of the Welch-Rose report of 1915 where the decision was made to separate public health schools from medical schools (Fee & Bu, 2007:977). This decision has clearly become problematic, as the divide between an individual and population focus in the medical curriculum has been formalised and deepened.

But as a manmade phenomenon this divide is “*a human construct – the distance – and therefore I’m optimistic that thoughtfully developed, we can actually do better*” (IE2). When this distance is viewed as a construct then opportunities to change emerge: “*In what way is it different if it was a social construct? [If] this distance is a social construct then how do we deconstruct that?*” (IE2)

The starting point of deconstructing this distance between public health and medicine depends on us answering the question: “*Public health is important, but what is it?*” (IE1) This question posed by a well-published public health expert reminds us to acknowledge the complex – and, ironically, highly individual – understanding of where public health ends and medicine begins or *vice versa*.

Public health is often used as a synonym for: care for the poor; care for rural populations; medical care provided by publicly funded institutions; primary health care; and family medicine or global health (Buckner, Ndjakani, Banks & Blumenthal, 2010:1645; Maeshiro *et al.*, 2010:211-2).

One strategy for understanding what people think public health is, is to simply ask and the first people to ask are the students in our care. As an SHSPH workshop participant said: *“If I see a student in first year and I say to them what is public health what answer do I want to get? In the second year, third year, fourth year, fifth year, sixth year? And that will help us with the golden thread”* (PH3).

5.4 Medical student perspectives on public health

The medical students' understanding of public health was explored as an open-ended question in the survey conducted among medical students in 2012 (Chapter 4, Section 4.6.6). The question was: *“Although we are all clear what we mean by concepts such as ‘surgery’, many of us will understand public health in different ways. What do YOU think public health is? [Tip: there is no wrong answer, it is an opinion]”*.

A total of 589 students participated in the survey and approximately 45 responses were coded per year group, which resulted in a total of 244 coded responses. Three themes emerged:

- Public health as a whole;
- Parts of the whole; and
- Popular equivalents.

The first number of the participants' codes reflects their year of study.

5.4.1 Public health as a whole

The first of the themes of 'public health as a whole' captures the respondents' efforts to communicate a complex and compound picture of what public health is. Five categories contributed to this theme as represented in Figure 5-2.

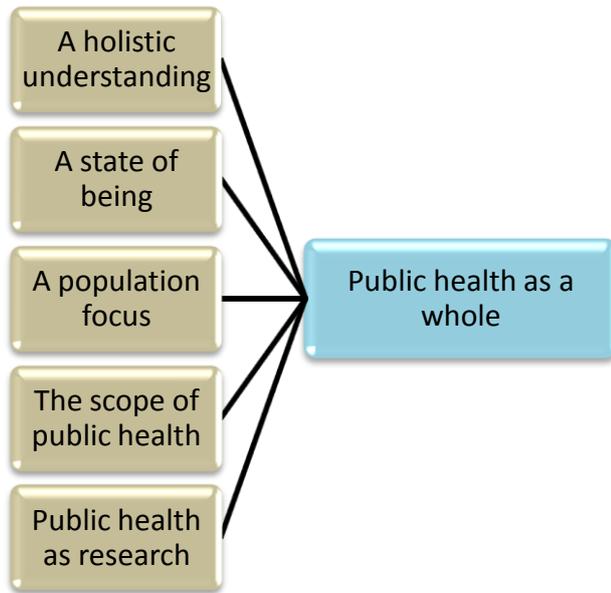


Figure 5-2: Public health as a whole and contributing categories

5.4.1.1 A holistic understanding

Among the respondents there were those who had a multi-dimensional understanding of public health: “[Public health] has to do with community health, epidemiology and prevention of disease via raising awareness and educating the community about disease and prevention. It is community-based health promotion and disease prevention” (4051). Common among these more multi-dimensional descriptions of public health is the understanding that public health is complex and made up of many different factors: “Public health is the collective term to describe all the health issues, epidemics and other things that affect communities at large (and not necessarily isolated groups or individuals). This includes diseases (e.g. community-acquired pneumonia), epidemics and issues regarding sanitation etc.” (3002).

Some described this complexity at an abstract level: “Knowledge about the health of society and the kind of disease burden affecting a society in a specific time and the kind of health interventions needed to overcome the disease burden” (2018).

Others relied on multiple inclusions to show the complexity: “The epidemiology, projection and implementation of health policy and disease surveillance within the national population” (3021) and “the health care systems, the legislation behind health. Childcare,

neonatal care, legislation around pregnant women, primary health care etc.” (3023).

5.4.1.2 A state of being

Public health was considered as a state of being: *“Public health is exactly what it says: the health of the public (every citizen of South Africa)” (5020). “Public health is a measure of the general population’s well-being” (1011) or “the general health status of the people of South Africa” (4032).*

Not only is public health about a personal state of being healthy, but also this construct was extended to include the *“general state of the community in terms of health, finances, and social services” (2060) “including what might put it [the community] at risk” (4043).*

5.4.1.3 A population focus

The population focus of public health was highlighted by respondents: *“Public health is a system where you look more at the health of the society than an individual patient” (2009), with a popular emphasis on the community as a target population: “[Public health is] managing health not on an individual level, but rather at a community scale” (5047).*

The population focus was also explained from the perspective of an individual practitioner: *“Public health is when the medical practice is not confined to the treatment of and focus on one person who is able to come for consultation. It entails the maintenance of health in communities” (1032).* This dual focus on the individual and the population also works in reverse. Medical practitioners (often unknowingly) use public health disciplines such as epidemiology in order to practise more effectively when they face clinical uncertainty (Gillam & Maudsley, 2009:127; Stone, 2000:11).

Some respondents showed insight into the specific strategies involved, such as health promotion and health education: *“It is [the] study and bettering of the general public’s general health through not only means of medicine but health education and promotion of health” (2014).* But the less obvious strategies such as policy formulation and management of resources were also included: *“It’s about policy making in the health sector, be it at a public or private institution. It’s about coming up with concepts in health*

management that benefit the community as a whole" (5033).

The constructs of public health and community health were used interchangeably by the respondents with the common factor between the two the key understanding that neither is focused on individual health. "[Public health] has to do with community health, epidemiology and prevention of disease via raising awareness and educating the community about disease and prevention. It is community-based health promotion and disease prevention" (4051).

The specific focus of public health on upstream factors that have an impact on the health of populations was brought to light: "The focus is on preventative measure[s] and rehabilitation" (5032) and "drinkable water and other sanitary 'things'" (5031).

5.4.1.4 The scope of public health

The broad scope of public health was easily identified: "Umbrella term for things such as making sure people live clean with drinkable water and other sanitary 'things', have access to health care and that such health care is up to a respectable standard. Also [public health] involves quite a bit of demographics" (5031).

5.4.1.5 Public health as research

Public health was either described as being entirely synonymous with research: "It's research work," (4033) or research was more often described as a component of public health. In some cases the research appeared to be an end in itself: "A non-clinical sphere of medicine focusing on research, epidemiology and statistics" (5036) but usually the practical applications of the research were added: "They do research as well into how we may improve health services etc." (3036). This understanding of public health is not uncommon, as there is often little emphasis on the application of statistics and epidemiology and therefore medical students can have a perception that public health is "academic and research based...with little appreciation for the population health outcomes achieved" (Tyler *et al.*, 2009:1310).

Vague responses such as: "It researches something about the community" (5043) were

balanced by the understanding that the research is specifically carried out for the design of interventions: “*Public health is the medical speciality that...includes research in disease trends and infectious-disease-prevention strategies*” (5037).

The wide scope of public health was allocated a wide scope of research: “*It is the all encompassing ‘sector of public health’, which includes the research done to improve public health; their understanding of health; what works and what doesn’t (in terms of medications), preventions and how to restrict further spreading of already established diseases*” (3038).

5.4.2 Parts of the whole

Respondents who described parts of public health either did so from a systems perspective or described some of the component topic areas such as epidemiology. Figure 5-3 summarises the construction of this theme.

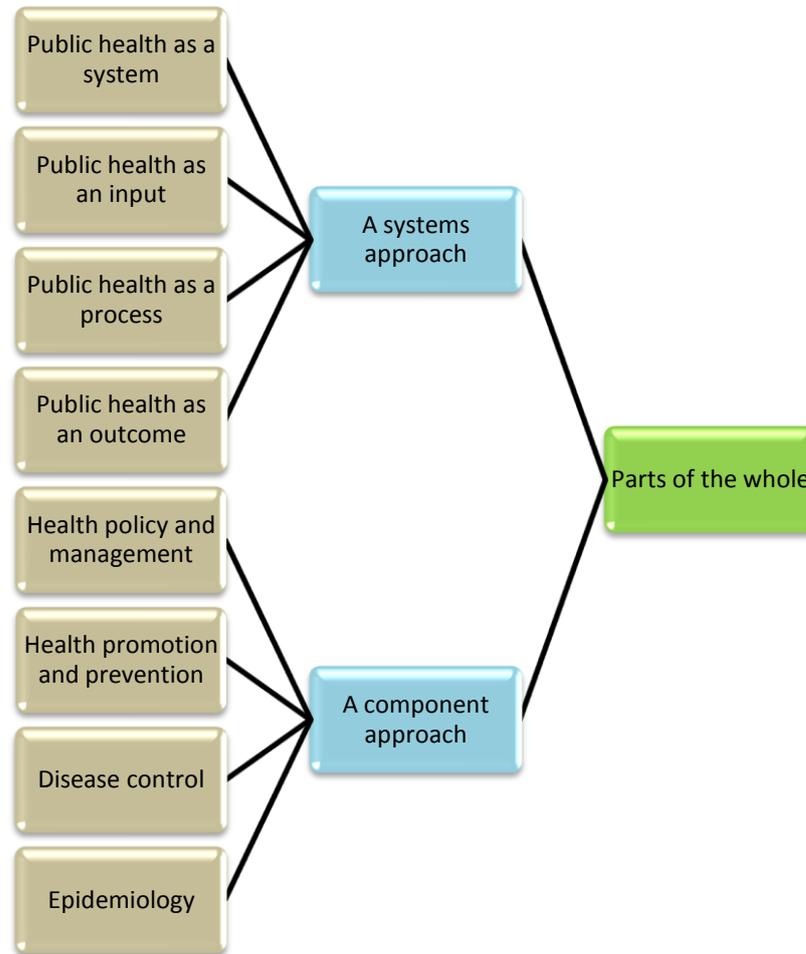


Figure 5-3: Parts of the whole and contributing categories

5.4.2.1 *Parts of the whole: a systems approach*

Respondents, who described public health as a system, either described public health as a system (as a whole) or described public health as a component of a system.

- *Public health as a system*

Some respondents developed the idea of a loose grouping of activities or the ‘umbrella’ term (5031) into a more organised systems model: “*It is the system/strategy that promotes a healthier society or a better control of a society’s health problems*” (2006). This understanding of public health as a system is different from other respondents’ understanding of public health as a system of health care service delivery. These expressions of a system are more akin to a meta-system that transcends mere health care service delivery: “*Public health is a system concerning itself with issues of biological*

nature that impact on society and the economy” (3050). One respondent reflected that although not per se a system “public health is the study of interaction of the health system with the patients. It includes epidemiology, health economics and health system delivery” (4057).

The idea of public health as a specific entity also emerged: *“I think public health is a department of health that focuses on the public – i.e. non-private patients in the community – and promotes health and prevents morbidity via immunisations/brochures etc. They also educate health professionals on the epidemiology of disease in the community and how to treat people from different cultures/SESS” (3034).* The use of the term ‘public health’ to describe the clinical care in publicly funded institutions is in wide usage and would explain this understanding. Such understanding of public health is used in other contexts, such as the United Kingdom and Europe, where public health equates to health administration (Fee & Bu, 2007:977).

Within any system there are inputs, processes, outputs and outcomes – some of which were highlighted by the respondents.

- *Public health as an input*

Some of the respondents focused on public health as an input in the system: *“Public health is concerned with the environment like improving resources to the public to ensure better health” (2046) or “the resources in place to increase (improve) the health of the public” (5042).*

- *Public health as a process*

Some respondents saw public health as a broad process: *“Health services available to the entire community; i.e. clinics and hospitals. But also other health services that keep track of health problems/issues (epidemics and outbreak-notification and management) and work to solve them and work to manage the medical resources. As well as trying to improve health services and awareness” (4030).*

One respondent foregrounded the specific strategies used: *“The use of policies and*

programmes to promote health in the general population. Preventing disease and educating people” (4022).

- *Public health as an outcome*

The theme of public health as an outcome resembles the theme of public health as a state of being: *“Public health is the overall health of all the people in a community or country. It includes the education about illness and the eradication of notifiable diseases and that the public is healthy enough to contribute to the economy and live life” (4056).*

5.4.2.2 Parts of the whole: a component approach

The most important fields of specialties or disciplines in public health are epidemiology; biostatistics; health policy and management; social or behavioural sciences; and environmental health sciences (Calhoun *et al.*, 2008:1601). Variation and additions to the grouping of the specialties is common. Of importance is the notion that public health has numerous components.

- *Components of public health*

Within the various understandings and descriptions of public health, there were shifts in emphasis. While some respondents emphasised the holistic or broad nature or the system-like features, some honed in on and chose to unearth one particular discipline/specialty of public health such as: epidemiology; health promotion and prevention; disease control or health policy and management.

- Epidemiology

Some respondents named epidemiology *per se*: *“Public health is non-clinical: it is involved in epidemiology and prevention of disease” (5029)* and *“a non-clinical sphere of medicine focusing on research, epidemiology and statistics” (5036)*. But it was not only the senior respondents who named epidemiology, some first-year respondents did so as well: *“Public health includes the epidemiology of health, the perseverance of*

certain illnesses, mortality, morbidity etc. It includes psychologically, sociological and biological factors. General health of public” (1065) and the “study of diseases – such as epidemiology, measures how to control diseases in an area” (1064).

Others described epidemiology rather than naming it: *“I believe it is the health of the population and deals with the distribution of disease and prevalence of disease in a population” (1042) or: “Knowledge about the health of society and the kind of disease burden affecting a society in a specific time and the kind of health interventions needed to overcome the disease burden” (2018).*

- Health promotion and prevention

“It is [the] study and bettering of the general public’s general health through not only means of medicine but health education and promotion of health” (2014). “The ‘science’ of protecting and improving the general health of the population. This is brought about via education and promoting a healthy life style” (3016). One respondent did not view promotion and prevention as part of public health but rather saw public health as a component of promotion and prevention: “Primary step in health promotion and prevention of disease” (2012).

- Disease control

Not surprisingly respondents emphasised the disease control component in their responses, as this component is the most visible to them from their knowledge of the prevention and treatment of conditions in terms of the medical curriculum. *“I understand it as a cycle between disease and the community. Diseases impact communities and certain communities have an impact on certain diseases. All according to the bio-psycho-social model. Everything is integrated” (5012). A first-year respondent had a very similar idea to the fifth-year respondent: “Public health is the concern of the health of the public, how diseases are contracted and transmitted in the public; thus the treatment of these disease[s] and also the emphasis on good health” (1043).*

Some described public health as disease control at a more organisational level: “*Public health is the medical speciality that involves policy making, organisation, surveillance and focuses on the health of the population. Surveillance includes research in disease trends and infectious-disease-prevention strategies*” (5037).

The dominance of communicable diseases over non-communicable conditions was clear: “*Usually relating to diseases that can easily spread via a majority of people (AIDS, Flu, TB)*” (3004). This last statement was not unexpected from a medical student who lives in a country with a high prevalence of AIDS and tuberculosis.

The priority health concerns of populations were acknowledged: “*Public health is a service provided to the community (in various forms) to ensure the social, psychological and physical health of the community, with specific relevance to disadvantaged communities and emphasis on pressing health issues (TB, HIV etc.)*” (3008). These health concerns that affect many were given primacy: “*Public health...also studies the most common diseases that affect this same society such as malaria, cholera*” (4050); and public health was seen as protection against these common diseases: “*Protecting public against infectious diseases*” (3017).

While some respondents highlighted common diseases, others clearly remembered the national notification system: “*Public health – health care in a broad spectrum mainly focussing on notifiable diseases (e.g. measles) and school health, immunisations and focuses on a team approach between all disciplines of health care (e.g. nurses, doctors, surgeons etc.)*” (3053).

- Health policy and management

“*It’s about policy making in the health sector, be it at a public or private institution. It’s about coming up with concepts in health management that benefit the community as a whole*” (5033). The purpose of policy making was emphasised: “*Health policy is developed and implemented to not only provide health care to many but to prevent health care crises; e.g. cervical Ca[ncer] screening and testing for HIV etc.*” (3025).

The management of the health care system itself was identified: “*The way health care*

is ‘administered’ to the public – strategies and all” (3013). A first-year respondent managed to communicate a more complex definition: “*Department which helps provide with policy construction, morbidity and prevention of pandemic disease. Also provides with estimation of cost and management of public health facilities*” (1009). The most extensive health policy and management explanation included some strategies as well: “*A sector in medicine that deals with health policies and management of health and illness on a public level. Deals with screening of diseases, health surveillance strategies etc.*” (3041).

Within health policy and management, health information was highlighted: “*The division of health systems that focuses on the public concentrating of the reach to medical facilities and health information*” (2011). Another pointed out the use of legislation as a policy mechanism: “*Legislation and systems that’s in place to ensure that a population’s health status is maintained and in good shape*” (4042).

Management competencies such as: “*Management and organisation of the health system and providing health services to the public*” (3022) were extended to include the quality dimension of efficiency: “*Public health deals with the smooth running of public health care services (i.e. public clinics and public hospitals)*” (2044).

Management strategy had a community nature too: “*Managing health not on an individual level but rather at a community scale*” (5047).

5.4.3 Public health as a part of medicine (or not)

The position of public health amongst the clinical specialities was exclusionary on the one hand: “*A non-clinical sphere of medicine focusing on research, epidemiology and statistics*” (5036). On the other hand public health was allocated a space amongst the clinical specialities: “*Public health is the medical speciality that involves policy making, organisation, surveillance and focuses on the health of the population. Surveillance includes research in disease trends and infectious-disease-prevention strategies*” (5037). One respondent echoed the most widely used definition of public health: “*I think public health is a sub-division of medicine aiming at preventing diseases, prolonging life and promoting health in communities especially*” (3032). The definition developed by Winslow

reads: “The science and art of preventing disease, prolonging life and promoting health through the organized efforts and informed choices of society, organizations, public and private communities” (Winslow, as cited in Petrakova & Sadana, 2007:963).

5.4.4 Popular equivalents

The theme of popular equivalents is a combination of responses that repeats popular misconceptions about public health: that it is care of the disadvantaged; for the poor; for rural populations; care provided in the publicly funded institutions; primary health care; free-of-charge health care or family medicine. These categories are represented in Figure 5-4.

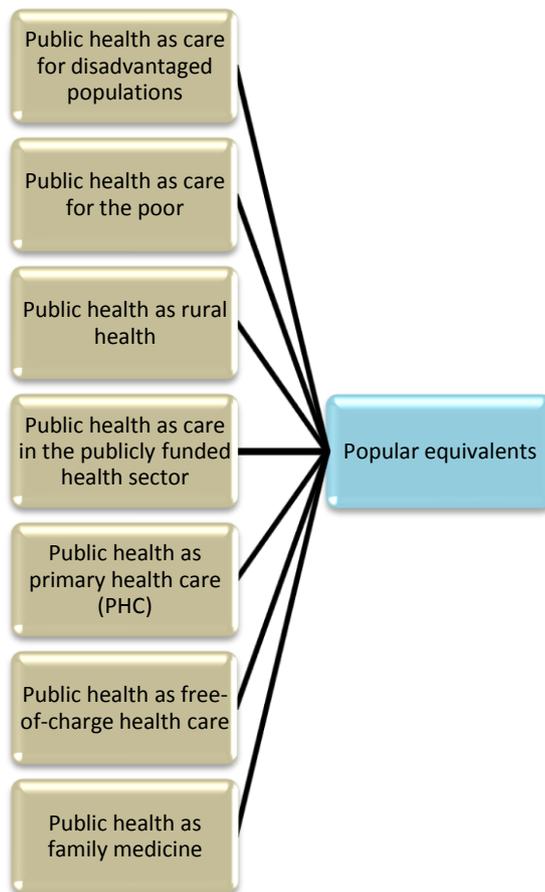


Figure 5-4: Popular equivalents and contributing categories

5.4.4.1 Public health as care for disadvantaged populations

The notion that public health primarily focuses on disadvantaged communities was clear: “Public health is a service provided to the community (in various forms) to ensure the social, psychological and physical health of the community, with specific relevance to disadvantaged communities and emphasis on pressing health issues (TB, HIV etc.)” (3008). “Public health is health-care- and disease-prevention techniques that are aimed at the general society – particularly those who are underprivileged” (2062). The respondents are not alone in this opinion. Maeshiro *et al.* (2010:211-2) make specific mention that this view of public health is one of the common misinterpretations.

5.4.4.2 Public health as care for the poor

Public health was equated with a welfare provision that provides “health care to the less fortunate who cannot afford private care” (2032). This focus on the financial barriers to health care implies an understanding of the two components of the health system in South Africa: the privately funded sector and the publicly funded sector. “Health care focused on providing health care to the community; those who don’t have access to private care” (3005). This understanding of public health is also common in other settings (Buckner *et al.*, 2010:1645; Beitsch *et al.*, 2005:151).

5.4.4.3 Public health as rural health

The strong association between public health and rural health that is sometimes found in the literature (Beitsch *et al.*, 2005:152) was echoed by some respondents: “Deals with rural medicine” (5050). A more complex understanding of population health approaches in a rural setting was also evident: “Servicing the rural community with medical care for basic medical everyday needs; understanding the demographics and subsequent services offered to these populations” (5004).

5.4.4.4 Public health as the publicly funded health sector

The view that public health is an equivalent to the care provided by the publicly funded health sector (clinics, hospitals etc.) is common and is equally well represented in the

respondents' understandings: "*My view of public health is the health services that are predominantly provided by the public sector [Department of Health]*" (2016) and refers to "*a system of public clinics and hospitals, including mobile units*" (2017).

Some respondents broadened the concept to include "*the information, facilities and hospitals provided for the public by the government and medical authorities*" (3028). Some shared their personal opinion of this health care delivery service: "*Unorganised health care system, with problems ranging from lack of staff to unnecessary deaths*" (2058).

One respondent added an economic perspective: "*Division of health services funded and run by the public sector (government). Funded by taxes and provides as cheap as possible services to anyone*" (3031).

5.4.4.5 Public health as primary health care (PHC)

Public health was equated with primary health care (PHC): "*Primary health care in communities*" (2025). PHC is defined by the World Health Organization as "essential health care made universally accessible to individuals and families in the community by means acceptable to them, through their full participation, and at a cost that the community and the country can afford" (De Haan, 2005:24). Although PHC is a population-based strategy it is not the equivalent of the far wider construct of public health, which has a broad ecological approach to health.

The emphasis placed on PHC in the medical curriculum is commonly found in the department of family medicine. Although public health is neither family medicine nor PHC, this respondent has clearly had enough: "*The family medicine department can stop shoving it [public health] down our throats until the government can start paying attention*" (5019).

5.4.4.6 Public health as free-of-charge health care

While some respondents equated public health with health services rendered in the publicly funded sector, a group of respondents particularly stressed that public health was

also “*free health care*” (4039). In practice this notion of ‘public health as free health care’ is almost the equivalent of ‘public health is for the poor’. This overlap in understanding is due to the practice of using a means test to judge a patient’s ability to pay for care. If the patient does not meet the criteria to pay – in essence the patient is too poor to pay – then care is free of charge: “*Health care available to all the public at no cost, this being basic health care and hospital health care*” (2063). In this understanding public health is the ‘discount warehouse’ equivalent of health: “*Medical services free/at a cheaper cost to the public*” (2039). “*Public health is the health services offered to the public either for free or at a very low cost*” (4028).

Access to this free-of-charge health care (understood as public health) is seen as a citizen’s right: “*The right to primary to tertiary health care for every individual who cannot afford private health care*” (4059).

5.4.4.7 Public health as family medicine

The terms ‘public health’ and ‘family medicine’ were synonymous in the minds of some fifth-year respondents: “*I honestly don’t know what public health is, just that it’s part of family medicine*” (5041) and “*it is family medicine or community medicine treatment of the general population*” (5045). “*Family medicine brings a lot of trouble and effort! But it is necessary to observe, to know what is going on and to remember the frustrations we have patients also experience*” (5013). One possible explanation for this understanding by the fifth-year medical students (they were the only year group that made this connection) is that they had just completed Block 16: Health and Health Systems. This block is the one block where the Department of Family Medicine and the SHSPH co-present and it is possible that the respondents have bonded public health and family medicine into a single entity.

5.4.4.8 Public health as public health

Non-specific answers that repeated the question as a statement were a common ploy. Variations on “*health with regard to general public*” (2001) and “*the general health status of the populace as a whole*” (2002) were common. Despite the respondents not giving an opinion on what public health is did not preclude them having an opinion on whether they

liked it or not: “*Something mentioned in Block 2 in second-year medicine course that makes me never to want to repeat second year*” (3061).

For some, expressing the complex and ambiguous nature of public health was overwhelming: “*The overall health of a society and well-being of its people in general on average*” (2035).

5.4.5 Opinions of the first-year ‘naïve’ medical students

The opinions of first-year respondents are of particular interest as these respondents participated in the study prior to their first arrival on the Faculty of Health Sciences’ campus. Their perspectives have been captured in a vignette. A vignette is described by Grbich as “a photo with blurred edges, and it provides an example or small illustrative story which can signify a particular point or perspective regarding some finding in the data” (2007:214).

Vignette 1: The views of the first-year medical students

Among this group, which was expected to be the group least likely to know anything about public health, there was a surprisingly innate understanding of what public health is: “*Public health is the delivery of health care services to the public so that the country’s mortality, morbidity and other health indicators can be improved so that the majority of the population achieve good health*” (1025). In some cases there was an emphasis on epidemiology: “*I believe it is the health of the population and deals with the distribution of disease and prevalence of disease in a population*” (1042). Some emphasised the community nature: “*Public health is when the medical practice is not confined to the treatment of and focus on one person who is able to come for consultation. It entails the maintenance of health in communities and the promotion thereof*” (1032).

The focus on upstream factors was also identified by first years: “*Public health entails not only the treatment of injury and illness but is also concerned with the prevention of such misfortunes as well as informing patients of possible health aspects e.g. diabetes*”

(1066). The wide spectrum of practices that make up public health was mentioned by a first year as: “*Systems in place to ensure the continued well-being of a country’s people. This could be vaccination, clinical [unreadable] or as simple as awareness campaigns*” (1068).

Public health was also identified as a government “*department which help[s] provide with policy construction, morbidity and prevention of pandemic disease. [Public health] also provide[s] with estimation of cost and management of public health facilities*” (1009).

The understandings of first-year ‘naïve’ respondents were as wide ranging and as rich as those of their counterparts in the later years of study.

5.4.6 Discussion

These findings suggest that multiple and concurrent understandings of public health exist among our medical students. Even though at times the respondents’ perceptions of public health were messy, partially formed or imperfectly understood, the perceptions are undeniably rich.

The findings tell us that the respondents have their own unique theories of what public health is and can articulate these theories well. These personally held theories are both complex and multifaceted constructs and these theories often go beyond the recall of facts. Respondents gave authentic examples. These examples suggest that respondents understand what public health is. Many of these examples of public health go beyond the practical visible work of public health that would be of most interest to medical students, such as disease prevention or vaccination. Other examples include the behind-the-scenes work of health systems research and policy formulation. The ability to see the organisation of the parts that make up the whole demonstrates the respondents’ analytic ability to see the epistemological core of public health.



Respondents reflected the entire gamut of popular equivalents in their responses but these equivalents are so prevalent in society and academia that it would be unusual not to find them among our own students. One equivalent that was not mentioned

by the respondents was that the term ‘public health’ is sometimes synonymous with the term ‘public health medicine’ (Stone, 2000:10). The subtleties between the two are so slight that many public health specialists (with the Master of Medicine degree) or public health professionals (with a Master of Public Health degree) would be hard pressed to explain the difference.

The first-year students’ theories were as well constructed as those of any other year group and this finding was puzzling at first. Analysis of the findings of the participants’ educational experience of public health in the medical curriculum (Chapter 6, Section 6.5.2) complicated the conundrum, which was finally resolved by revisiting the findings of the analysis of the block books (Chapter 6, Section 6.3.2) with a fresh eye.

Possibly some respondents did not know what public health is – or possibly lacked the vocabulary to explain – and as a result responses such as “public health is the health of the public”, although not incorrect, are too vague to be the source of any conclusions.

It is likely that those who facilitate learning about public health have similarly complex and perhaps competing understandings of public health. Two avenues used to explore the understanding of public health among academic staff were the interviews with the block chairs and the participants in the SHSPH workshops.

5.5 Block chair perspectives on public health

Unlike the medical students, the block chairs from the School of Medicine were not asked what they thought public health was. The reason for not exploring block chairs’ understanding of public health was that the research was specifically not an evaluation of any academic member of staff, their understanding or the undergraduate medical curriculum in general, but a search for joint knowledge and understanding on the best strategies for including public health in the undergraduate medical curriculum.

The question: “*The University of Pretoria has included public health as a golden thread in the medical curriculum, so how would you describe the inclusion in this particular block? [Probe what are the topics and who teaches each topic: SHSPH, School of Medicine etc.]*” encouraged discussion and provided many practical examples of how public health finds

expression in various blocks. Narratives obtained in this way revealed some insight into the block chairs' thoughts on public health via two themes: the boundaries of public health and the state of public health.

5.5.1 The boundaries of public health

Block chairs described a need for certainty or boundaries that clearly demarcate what public health encompasses: *"Does everyone know what public health is?"* (BC3)  *"What are the beginning and end points of your job description because we are seeing you involved in many different areas including some clinical areas and some basic pure epidemiological areas and we're not – I'm not in my mind – 100 % sure of what your total brief is"* (BC4). Above all was the need for personal certainty about what public health means: *"You need to explain to clinicians what public health is"* (BC4).

A need for clarity on where to draw the line emerged: *"In [subject] if we discuss preventative care, would that be part of public health or not?"* (BC3) and a concern existed  that if you *"don't label it correctly...it sort of gets lost in the bigger scheme of things"* (BC3). This need for clarity of where the boundary between public health and medicine lies suggests a conceptual horizon among the academic staff. Although the conceptual horizon of public health has been used to describe the short sightedness of medical students, Riegelman also refers to a similar condition among the academic staff – a condition that he calls "physician myopia syndrome" (PMS) (Riegelman, 1991:254).

Although on the one hand there was a need by the block chairs respondents for clear demarcation between public health and medicine, the counter argument was equally strong: *"So I think a lot of this is happening already but people just don't realise that it is happening and they haven't labelled it or thought of it as part of public health. So if we can just help people to realise that they are actually doing public health in a way, because people don't want to think of it as public health"* (BC3).  The sentiment that people don't want to think of any part of their practice as public health (despite it already being part of their practice) suggests a resistance by clinical staff to align themselves with a non-clinical subject and is an argument in favour of not belabouring the inclusion in the curriculum.



This question of an absolute or relative border between public health and medicine did not go unnoticed: *“There is no question in my mind that there’s it’s just one big continuum from what you consider public health to what we consider treatment of clinical disease”* (BC4).

The relative benefit of professional certainty (or the ‘closure’ of the discipline) contains its own disadvantage. Greater certainty would ensure discipline closure, but closure and definition entail labels and this circular argument returns us to the source: the ‘public health’ label is neither well understood nor particularly well liked. *“This brings us back to the name calling, if you call it the golden thread of public health it won’t work. We are going to have to find a new innovative name that doesn’t label it”* (BC3). Although the actual name of the golden thread is ‘epidemiological approach to health’ the SHSPH academic staff commonly refer to the thread as ‘public health’. This naming of the golden thread as ‘public health’ is equally problematic as a result of confusion with the publicly funded sector in the health system (a misconception also found among our medical students – see Chapter 5, Section 5.4.4.4).

Despite the lack of a clear boundary between public health and clinical medicine there was acknowledgment that the borders of public health are large and that public health *“is...a bigger picture”* (BC2) and *“take[s] responsibility for the whole public, the whole of society and to me that is part of defining”* (BC1).

A block chair considered public health as important to provide information regarding the priority health needs of the population that need to be addressed in the medical curriculum: *“Public health medicine must tell us what is happening, what is prioritising and what is the context and hopefully that will lead to a complete understanding of, of where we are”* (BC2). This importance was extended to understanding the work of public health as *“we need for all the departments to know what one another is doing. And especially like your department because you got some really prominent scientists there”* (BC4).

5.5.2 The state of public health

Although there was little certainty on the actual scope of public health the block chairs recognised that public health has changed since the time of their own studies: *“I learned*

even as an undergraduate is you have to screen the population to prevent against cancer of the cervix, but we never did that but now we are doing it (BC2) and public health is “*not only look[ing] at the kitchens of, uh, of, of restaurants or the effluent of sewerage or stuff like that or smoke from factories*” (BC2). The recognition that the content and scope of public health are not static and are conceptualised differently since their own studies could add to the uncertainty of the clinical staff.

An inherent feature of public health was the “*behind the scenes and visible work*” (BC2).



“Most of the public health contributions have been behind the scenes, which makes recognition, um, harder” (BC2). This feature makes it more difficult for

academic staff to engage the interest of students and for both to see beyond their conceptual horizons.

Although what constitutes public health (or its boundaries) and the nature of public health (or its current state) might have been ambiguous the position of public health within communities was not. “*The purpose will be served if we then contextualise what is...what the diseases mean within the community*” (BC2). Public health requires community involvement – but academic staff reported that this was not always clear to students or possible in the curriculum.

Academics shared the view that public health is difficult when compared to clinical medicine: “*The [clinical subject] part of this is pretty easy but the public health part of this is pretty difficult and you have to understand that, you have to see the bigger picture and you have to see the broader outline*” (BC2). This feeling of being uncomfortable with an ambiguous topic is not unexpected, as most clinicians prefer the firm ground of their own specialty (Lee & Hoyle, 2002:639). The lack of clarity about exactly where the boundary lies between public health and medicine and the changed scope of public health becomes an unavoidable source of stress for those who have a low tolerance for ambiguity.

The inclusion of public health that has a primarily postgraduate focus in the medical curriculum is not unique. It became clear that other specialties such as radiation oncology are considered somewhat out of the mainstream of medical education, but that the medical curriculum still has to reflect their existence. In the case of radiation oncology this is achieved through a single input in the curriculum. Other inclusions such as ethics are

included as a golden thread in the curriculum and “*the same thing that bothers you, bothers the people who worry about ethics*” (BC 2).

5.5.3 Discussion

My choice of the word ‘boundaries’ to describe the first theme reveals my own bias, as  boundaries are associated with turf wars and boundary walls. Lakoff and Johnson (2003:3) remind us that “concepts that govern our thoughts are not matters of the intellect. They also govern our everyday functioning down to the most mundane details”.

One particular association with the word ‘boundaries’ is the notion that there is an ‘us’ and ‘them’. The allocation of the ‘us’ (or the ‘them’) is of course a relative position depending on the point of view of the speaker. The question arises whether this distinction is more pronounced for specialist versus general practitioners. As the respondents in this study were mostly specialist practitioners, the question remains unanswered. The need to draw the line of where medicine ends and public health begins strengthens the construct of a professional divide. This division was emphasised as being problematic by the international experts one of whom described this split as “*profound*” (IE2).

The use of the word ‘state’ in the description of the second theme has a second connotation beyond the state or condition that public health is in. The underlying connotation is that of sovereignty – the sovereignty of public health. This construct further strengthens the ‘us’ and ‘them’ relationship between public health and medicine.

No reason exists for supposing that by asking block chairs what they think public health is would have evoked any markedly different responses from either the findings from the literature review or the statements made by medical students. What emerged from the interviews was a perspective that is concerned with identifying components of public health and seeing patterns of how these components were organised and could fit into their discipline.

Reflecting on the inclusion of public health in the undergraduate medical curriculum probably occupies the minds of the block chairs only sporadically if at all. The inclusion

should have a more elevated position in the thoughts of the academic staff who are responsible for the inclusion: the SHSPH.

5.6 SHSPH staff perspectives on public health

It is important for those who facilitate learning about public health to examine our personal theories of public health. More important, though, are our views of public health in the undergraduate medical curriculum. The views of the SHSPH academic staff on public health in the medical curriculum are synthesised in Chapter 6 (Section 6.3) in the findings related to the SHSPH's educational intent with the inclusion of public health in the medical curriculum.

In defining the inclusion of public health in the medical curriculum we need to acknowledge the confusion created by terms that are used interchangeably: *"You couldn't make a distinction [referring to own educational experience] between what is community health, family medicine going into the community versus public health, that distinction wasn't made"* (PH3). The strong mental association of community health and rural placements has deepened the confusion of terms so that *"there was a perception that you cannot conduct community health in an urban setting or in fact it was only something that was meant for rural populations"* (PH1). Conversely, any provision of health services in rural areas is considered as public health medicine – previously termed 'community health medicine'. *"There is a distinction between community medicine where you go into rural areas. In my mind that's not public health"* (PH3). *"Rural medicine...there are certain aspects of public health, but public health in fact you know is much, much broader than that. It is not just in fact you know for local communities, it's not only just for disease control. There are other issues as well"* (PH1).

The use of the term public health to refer to medical services rendered *"to the poor and underserved"* (PH4) or *"every time you talk about the public sector...and health services, it's ah, [considered as] public health"* (PH1) strengthens the multiple concurrent understandings of public health.

This multiple concurrent understanding of public health is one of the primary constraints from a curriculum development perspective. Understanding our personal theories of

public health and public health in the medical curriculum (or the ‘what’) as a departure point for facilitating the learning of public health is the bedrock for any discussion on the strategies (or the ‘how’). Until then “*it’s difficult to go to a block chair and say we are not in this block and then the block chair will say ‘ok what would you like to achieve?’ And then we say we are not 100% sure. So that’s been part of the difficulty and as [we] inherited this, this, ah this curriculum. All of us have inherited it so none of us consider it...it has sort of organically changed over time*” (PH4).

The ‘why’ of including public health in the medical curriculum was not discussed and can be considered as undisputable for a number of reasons. The most pragmatic reason is that the Health Professions Council of South Africa (HPCSA) has prescribed the inclusion in the regulations that govern the training of doctors (HPCSA, 2009). Even if this requirement could be put aside there are other arguments: learning about public health makes better doctors (Gillam & Maudsley, 2009:126); doctors need to be able to work in population-centred health systems (Frenk *et al.*, 2010:1924); public health is essential to ensure the social accountability of medical schools (Boelen & Woollard, 2009:887); public health and medicine cannot be separated (Woodward, 1994:391); and public health is part of developing citizenship (Riegelman, Albertine & Persily, 2007:4) to name a few.

If the debate for the inclusion of public health in the medical curriculum is over then the public health professionals should be able to share the construct of public health as a clear mental model that could be shared with our medical students. The simplest way to find out what this mental model might be was to ask the global online community.

5.7 Global online community perspectives of public health

A challenge was posed to the global online community of public health professionals (described in Chapter 4, Section 4.6.10). The challenge was to develop a metaphor or visual model of what public health is so that this metaphor or visual model might form part of our strategies for facilitating learning about public health at an undergraduate level. The envisaged educational strategy is to use the model or metaphor as a visual tool that becomes a standard inclusion in all public health-related presentations. Ideally this image should represent the compound bigger picture of public health and allow the academic member of staff to position the topic under discussion within the bigger picture. Once a

visual model is developed, the widespread use of PowerPoint makes such a strategy simple and effective to use.

Twenty-seven responses were received to the question posed to the global online community of public health professionals (Chapter 4, Section 4.6.10.1) and once these were coded the responses fell along a spectrum (Figure 5-5).



Figure 5-5: Global online community of public health specialists' suggestions of metaphors or images that depict public health

The variety of ideas represented by this spectrum is from the most abstract, population focus (on the left) to the narrowest individual focus (on the right). In the gradients between the two extremes each level shows a component of public health, such as a single disease focus such as HIV or a single element such as clean water. In all the suggestions the suggested image or metaphor does not exclusively represent public health. For example, the image of a house is equally representative of architecture and the problems associated with using a public figure is that no public figure would fit the requirement of being universally recognised or acceptable.

A possible reason for this wide spectrum of ideas rather than crystallisation of a single image or metaphor is that *“public health is in mainstream places and...public health really is everywhere!”* (Global5) This ubiquitous nature of public health makes it *“too wide to brand. It is an umbrella term which covers a number of brands”* (Global26). Another reason for the wide spectrum of ideas is that public health itself *“has been reinvented from the traditional understanding of...inspection of hygiene and sanitation, and vaccination as primary prevention of communicable diseases”* (Global23).

 This combination of a changing nature, overlap with other disciplines and a ubiquitous nature has resulted in those who have tried to create a single image giving up and using a *“variety of photos”* (Global11). But medicine has many similar features and although the meaning behind the Rod of Asclepius (rod with intertwining serpent) has faded, the *“association with [the rod of Asclepius and] health isn't too bad”* (Global12). It seems that *“depict[ing a] population oriented approach to health will be admirable”* (Global24) but not achievable within a single image or metaphor. Untwining this particular serpent is not going to be that simple.

5.8 Conclusion

This chapter: Origins and Understanding has described the bedrock of public health and the profound split between public health and medicine. This 1915 split continues through this chapter as a fault line or underlying tension in our search for understanding what we understand as public health.

The medical students, the block chairs (including the vice-dean of medicine), the SHSPH staff, and the global community of public health practitioners that have participated in this research have opened the dialogue on how we understand the construct of public health. Our understanding of public health can best be described as a multiple concurrent understanding where personally held views appear to be in conflict with others while they still maintain the overall shape of public health. ‘Multiple concurrency’ is a term used in public health to describe multiple concurrent sexual partners, with the implication that this practice is risky. Some educators might consider this multiple concurrent understanding of public health to be risky, but a greater risk is not engaging in meta cognition or thinking about how we think about public health. By resisting closure this multiple concurrent understanding of public health lays down a second tension.

In Chapter 6 the curricular intentions and aspirations of the inclusion of public health in the medical curriculum are explored.

6 Chapter 6: Intentions and Aspirations

6.1 Introduction

Chapter 6: Intentions and Aspirations has a dual focus: what we are trying to achieve with the inclusion of public health in the medical curriculum; and whether we are doing as well as we would hope.

Any intentions or aspirations that the School of Health Systems and Public Health (SHSPH) has with regard to including public health in the medical curriculum have to be understood in the context of the draft proposed public health competencies for medical students (University of Witwatersrand, 2012). The proposed public health competency framework is currently under development by representatives from the majority of the South African universities. These proposed draft competencies are described and contrasted with the SHSPH intentions before the particular emphases in our curriculum are brought into focus.

The particular emphases in our curriculum are augmented with an overview of the inclusion of public health based on the review of the study guides or block books. A final inclusion of these discussions of our intentions of including public health in the medical curriculum is the inherent struggle for balance between an institutional perspective and an international perspective.

The chapter continues with a synthesis of the identified constraints that limit the inclusion of public health in the medical curriculum before ending with the medical students' feedback and experience of public health in their blocks and in the curriculum. Because "students appear to be the driving force behind undergraduate public health education. Public health helps them understand people and populations and delivery of health care" (Persily as cited by Riegelman & Garr, 2008:325).

6.2 Curricular intent: the public health core competencies

The inclusion of public health in the medical curriculum required by the Health Professions Council of South Africa (HPCSA) necessitates formal compliance. The regulations

regarding the education and training of medical students and the accreditation of medical schools explicitly require the inclusion of medical public health but leave the interpretation of exactly what should be included to the discretion of the universities (HPCSA, 2009).

The HPCSA has also recently (2012) adapted the CanMEDS roles model (Figure 6-1) for the South African context. The CanMEDS roles and similar role frameworks were introduced in Chapter 2, Section 2.3.2. The adaptation has resulted in ‘medical expert’ becoming ‘healthcare expert’ and ‘manager’ becoming ‘leader and manager’. These changes are in line with the call by Frenk *et al.* (2010:1924) who suggest that developing leadership attributes is essential to transformative learning.

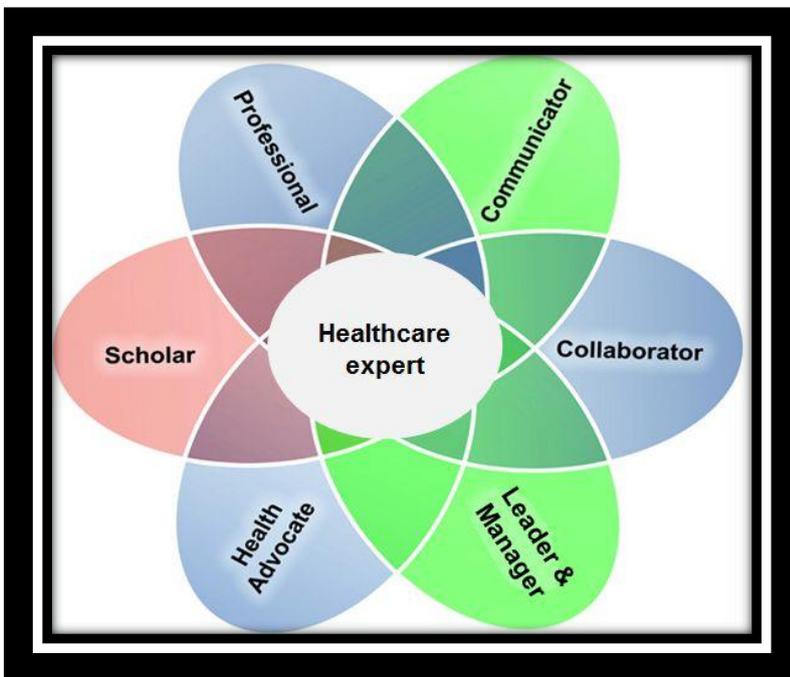


Figure 6-1: CanMEDS roles modified for South Africa

The adapted CanMEDS roles model helps public health educators to understand the overall intentions of the medical curriculum and to reframe the role of public health in the medical curriculum. This greater clarity has resulted in an acceleration of the discussions on developing a national public health competency framework that can guide curriculum planning and the facilitation of learning about public health among medical students.

Subsequent to the adoption of the modified CanMEDS roles there was a two-day meeting (7-8 August 2012) of all the academic departments responsible for public health in the

undergraduate medical curriculum in South Africa. The meeting was held at the University of Witwatersrand (Wits) to discuss the core public health competencies for medical students (Figure 6-2). Only Walter Sisulu University and the University of Limpopo were not represented at the meeting. This meeting was a follow-up meeting of two prior meetings in 2010 and 2011 that were shorter in duration and were associated with the Public Health Association of South Africa's conferences.



Figure 6-2: Participants in the national workshop on public health competencies in the medical curriculum [Used with permission]

The development of a public health competency framework is in line with the suggestion by Frenk *et al.* (2010:1924) that instructional reforms should include adopting competency-driven approaches to instructional design.

By the time of the 2012 meeting at Wits we had already conducted our own internal workshop on exploring our intentions of including public health in our medical curriculum. The interview with the national expert in public health also predated the Wits workshop. The two sets of data – the draft document from the Wits meeting and some illustrative responses from the transcriptions from the SHSPH workshop and national expert interview – are combined in Tables 6-1 to 6-7.

The proposed public health competencies are structured around seven domains that are described in the Core Competencies for Public Health in Canada (Public Health Agency of Canada, 2008:3-6):

- Public health sciences;
- Assessment and analysis;
- Partnerships, collaboration and advocacy;
- Diversity and inclusiveness;
- Communication;
- Policy and programme planning, implementation and evaluation; and
- Leadership.

The adapted CanMEDS roles (indicated in the first column of Tables 6-1 to 6-7) was simultaneously mapped against the proposed public health competency framework.

A 2013 meeting of the majority of the universities has already resulted in some modification to the draft document but, as the latest version is not available the 2012 version has been used. The 2013 modifications focused on rationalising and reducing the identified competencies but no additions were made.

Each domain is followed by a few observations but I have not carried out a point-by-point comparison for two reasons: first the competency framework is a work in progress; and, second, the purpose of this research is explicitly not an evaluation of the work of others but a search for joint knowledge and understanding. Tables 6-1 to 6-7 are therefore a combination of the CanMEDS roles, the proposed public health competencies (knowledge and skills only) and some illustrative responses from the SHSPH workshops' participants. The identified desired graduate attributes or behaviour (as a reflection of values and attitudes) are presented after this series of tables as Table 6-8.

Table 6-1: Proposed public health competencies (public health sciences domain)

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
Medical practitioner	Role of public health	<ul style="list-style-type: none"> - Recognise the role of public health: - History, structures, interaction of public health and health systems - Epidemiological and demographic transition and how public health has changed - Career opportunities for practitioners in public health 	Recall and describe past public health events	<i>“It’s crucial for them to understand you know what public health is” (PH3).</i>
Medical practitioner	The interrelationship between public health and primary health care (PHC)	Demonstrate knowledge about the development and role of comprehensive PHC and its origins, including the Alma Ata declaration	Describe components and philosophy of primary health care	<i>“It’s non debatable that we should include public health in the undergrad curriculum especially moving into the whole community-oriented primary care paradigm” (PH3).</i> <i>“The impetus to change from focusing on the largely on the curative aspect...And if we are going to look at the expenditure, the per capita expenditure...it’s way up but what do we get in return? Very very little. So primary health care is going to be their area of focus” (PH1).</i>
Leader and manager	Equity and social justice	<ul style="list-style-type: none"> - Understand the inequities in health status and health care 	<ul style="list-style-type: none"> - Measure inequalities - Practise in a way that 	<i>“You work in a hospital...you have no understanding about the economics... so if</i>

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
Health advocate		financing in SA - Identify barriers to uptake of health care services	recognises resource constraints	<i>you have that attitude of what [name] was saying you know, equity” (PH3).</i>
Leader and manager Scholar	Evidence-based practice	Understand evidence-based medicine and the hierarchy of evidence	- Read a journal article and critically appraise evidence in the literature using an evidence-based framework - Use evidence and research to inform clinical and public health practice	<i>“Understanding of the scientific approach towards the generation of information, they must be able to ah critique literature that they do read to be able to be able to comment about what information is valid, what information is reliable, what information can be used. In other words critical...they need to be critical in fact about the literature to be able to be critical about their literature and in fact you know the information they do get” (PH1).</i>
Medical practitioner Scholar	Health promotion as an approach to improving population health	- Define and address risks to population health - Principles and strategies for health promotion - Discuss the key approaches to health promotion	- Plan, implement and evaluate health promotion activities for patients and communities - Apply frameworks such as the Ottawa Charter to health problems	<i>“The other point I wanted to make here under health promotion is you know if one looks at the Ottawa Charter and it talks about you know, community involvement you know, concerning community action, policy change and all of that” (PH2).</i> <i>“Public health training at an undergraduate level...one of the elements is...a clear understanding of how to build a positive health, in other words in fact you know, the health promotion component. What activities and what behaviour, what lifestyle, what</i>

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
				<i>practices people should do in order to practice good health” (PH1).</i>
Medical practitioner Communicator Scholar	Health care system context within which clinical practice and population health interventions occur (i.e. you are part of a bigger context)	<ul style="list-style-type: none"> - Describe the attributes of a well-functioning health system - Understand that health systems include state, private, non-state and other actors - Understand the organisation of the SA health system and approaches to strengthening health systems - Identify key challenges facing the SA health system - Understand the role of the doctor in the health system - Describe the referral systems in SA - Recognise that health systems are structured and function differently across countries 	<ul style="list-style-type: none"> - Apply systems thinking for problem solving in services - Map community resources - Discuss the essential components of a health system, using the WHO model 	<p><i>“It is important for an undergraduate to know that health is a system. It has got inputs, it’s got processes, it has got outputs and it has got outcomes those elements are very crucial” (PH1).</i></p> <p><i>“Doctors need to understand how the system works...why it is that we actually have the treatment, the diagnostic approach that we do [for TB] , the two smear policy and why we don’t just do cultures on everybody and we point out to them the cost” (PH6).</i></p> <p><i>“Unless the people that are clinicians that are looking after the patients do have an understanding and appreciation of what are priorities there will always be a conflicting relationship between those who prescribe and those who make use of the services on the one hand and those who manage the services” (PH1).</i></p>
	Environmental health	<ul style="list-style-type: none"> - Describe the effect of key environmental health problems (water, sanitation, waste management) on health 	Identify the circumstances for consultation and appropriate resources within the community such as	<i>“The amount of waste that is generated by the hospitals and in fact you know the problem that it poses now in fact for communities...does not create a problem not</i>

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
		<ul style="list-style-type: none"> - Demonstrate awareness of the influence of environmental issues on health and health care utilisation - Describe the effect of climate change on the health of society - Describe the role of environmental health practitioners within the delivery of health services 	environmental health authorities and NGOs	<p><i>only for the people that are working there but to the general community as well. And then of course the policies and legislation” (PH1). “Having to understand...the value of water but how to assess...water of safe quality...how that water can be contaminated what soil contaminates can go in there, what should be avoided” (PH1).</i></p> <p><i>“The forms of air pollutions...essentially what we are doing is trying to identify the health, potential health problems and... its prevention. What interventions are necessary to ensure prevention, what monitoring systems do we need to have in place as a country or at least at the local level” (PH1).</i></p>

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
	Occupational health	<ul style="list-style-type: none"> - Identify occupational injuries and common diseases and their risk factors - Describe the principles of basic occupational hygiene - Apply key occupational health legislation in practice 	<ul style="list-style-type: none"> - Take an occupational history - Diagnose occupational injury and common occupational diseases - Complete appropriate compensation forms - Utilise referral mechanisms for patients and notifications - Facilitate access of patients needing rehabilitation 	<p><i>“To first at least understand the principles that are prior across in fact you know the various occupations” (PH1). And “exposure in the workplace and then exposure to health risks” (PH5).</i></p> <p><i>“The way I look at it is that the occupational health the manner in which it should be covered by public health as an undergraduate level...should focus on epidemiology and for people to understand this. And they should focus more on their health policies and in fact health legislation and their application” (PH1).</i></p> <p><i>“The hierarchy of control: where you start looking at first elimination, substitution, adaptation in terms of mitigating your risks. I think that's an important concept to consider” (PH3).</i></p>
	Global health governance	Demonstrate knowledge about the role of global health organisations in population health	Critically discuss the role of aid as a financing mechanism	

The absence of illustrative responses on global health governance in the SHSPH workshops should be interpreted with caution. If given the choice the SHSPH workshop participants might have identified global health governance as an important inclusion but perhaps not at an undergraduate level. Similarly, the effect of climate change on health is so far beyond the clinical interest of the average medical practitioner that it was not mentioned in the SHSPH workshops.

The SHSPH workshops also laid considerably less emphasis on the history of public health and the epidemiological and demographic transition. The reason for little emphasis on the epidemiological and demographic transitions is that these topics are included in the first-year curriculum prior to arrival at the Faculty of Health Sciences and prior to the 'start' of our involvement. In addition the origins of epidemiology (rather than the history of public health) are included in our curriculum but only to demonstrate clinical context and application and students are not required to learn it.

Career opportunities in public health do not form part of our formal curriculum but opportunities to interact with public health medicine specialists are included in the fifth year of study. The formalisation of this inclusion in the proposed competency framework might have benefits of designing purposive learning opportunities to stimulate interest in public health medicine as a career option.

A final difference is that the SHSPH participants emphasised social marketing as part of health promotion, which is not evident in the framework. "*The six 'Ps' of ah social marketing...it goes beyond health promotion...the point that social marketing makes is that...you need to essentially do your research first and based on your research then target your individuals using the most effective means possible*" (PH2). Table 6-2 describes the second domain in the competency framework: assessment and analysis.

Table 6-2: Proposed public health competencies (assessment and analysis domain)

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
Scholar Communicator Leader and manager	Research on a service-related problem – to inform health service delivery	<ul style="list-style-type: none"> - Describe the steps in the research process (identifying a research question, designing, protocol to ethics approval, to execution) - Distinguish different study designs and appropriate research methodologies 	<ul style="list-style-type: none"> - Conduct a literature review - Define a research question - Define objectives - Collect data - Analyse and interpret data in the ethical, political, scientific, socio-cultural and economic context - Write report, present results to services /health authorities 	<p><i>“They must be able to ah critique literature that they do read to be able to be able to comment about what information is valid, what information is reliable, what information can be used. In other words critical...they need to be critical in fact about the literature”</i> (PH1).</p> <p><i>“To be able to do that therefore to me an undergrad must be able understand the basic research methods, must be able to understand how data is collected, they must be able to understand in fact you know how it’s processed”</i> (PH1).</p> <p><i>“I mean we also look at study designs – again important in terms of reading a journal article”</i> (PH2).</p>
Scholar Communicator	Community Diagnosis: know the elements needed to assess the health needs of a population: population size, distribution and structure; socio-	<p>Use quantitative measurement - principles, methods, tools:</p> <ul style="list-style-type: none"> - Demography - Epidemiology: incidence/prevalence/measures of effect/causality - Biostatistics: understand concepts of statistical significance and confidence 	<ul style="list-style-type: none"> - Obtain facility data to identify and prioritise community health needs - Identify sources of data and the limitations of data - Access information sources - Analyse and interpret data 	<p><i>“So, in terms of epi it’s ...one sort of needs a basic understanding uh in terms...distribution of disease and determinants and causation”</i> (PH2).</p> <p><i>“The major health problems in a given, in fact you know, area”</i> (PH1).</p> <p><i>“The second attitude is the...the generation and the use of information. Because I think often we tend to think that someone else</i></p>

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
	demographic profile, health problems and their determinants	<p>intervals, understand hypothesis testing, understand sampling, appropriate graphic representation of data</p> <p>Recognise the role of social determinants of health</p>	<ul style="list-style-type: none"> - Use data to document practice - Compute rates and measures of central tendency - Demonstrate the ability to use statistical software for basic data analysis - Be able to discuss the social determinants of health and critically discuss the contribution of these factors to health problems and the health of the population 	<p><i>must be responsible for generating information and then in fact you know...we need to cultivate an attitude that make health practitioners realise that in every little bit of work that they do they are contributing towards a generation of information but that the health information they use it as well"</i> (PH1).</p>
<p>Medical practitioner</p> <p>Scholar</p> <p>Leader and manager</p>	Identify priority health problems	<ul style="list-style-type: none"> - Describe the burden of disease framework (DALYs, etc.) - Discuss the cost implications of health decisions/opportunity costs - Describe the principles of resource allocation 	<ul style="list-style-type: none"> - Use data from a population health needs assessment to identify priorities 	<p><i>"Total management of a patient in a community which therefore will take cognizance of what's happening in the community so that's the first attitude that we want to inculcate"</i> (PH1).</p> <p><i>"We have got limited resources, every country has but limited resources...and therefore we need to inculcate in the young minds of people who are going to become doctors...a clear understanding of what are priorities... that are based on a whole host of</i></p>

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
				<i>factors” (PH1).</i>
Medical practitioner Scholar Communicator Leader and manager	Disease surveillance	<ul style="list-style-type: none"> - Describe the principles of disease surveillance - Understand the role of health practitioner in disease notification - Identify an outbreak 	<ul style="list-style-type: none"> - Complete notification forms - Complete death and birth certificates - Complete TB register - Report suspicions to the appropriate authorities so as to initiate an outbreak investigation 	<p><i>“We can explain to the future doctors how the system works and what role they have to play, for example, that they notify and how they then must please try to get microbiological proof of the diagnosis” (PH6).</i></p> <p><i>“Fill in death certificates, fill in notification forms of infectious diseases, being aware of what is available and where you can find it...if your patient has an adverse drug reaction, you are supposed to fill in a form and send it to the Medicines Control Council” (PH6).</i></p>

Little distinguishes the curricular intentions from the proposed competencies and the SHSPH intentions in this domain. The cost implications of health decisions or opportunity costs are absent in the SHSPH discussions as ‘economy and health’ is a separate golden thread in our curriculum (Kruger, 2008:2). One possible difference is the slight emphasis by the SHSPH participants on medical students’ understanding the reason for, and attitudes towards, the proposed knowledge and cognitive skills in this domain. The SHSPH participants also emphasised making public health useful in practice: “*Where do you get these forms? Maybe we should be giving a little booklet of useful internet links to get the paperwork and download the form and addresses of where you send it*” (PH6). So for a doctor in practice “*these are practical, useful little things that we should be concentrating on*” (PH6) and that simultaneously contribute to the adequacy of the information that supports population-based interventions. The third domain of partnerships, collaboration and advocacy is contained in Table 6-3.

Table 6-3: Proposed public health competencies (partnerships, collaboration and advocacy domain)

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
Health advocate Professional	Advocacy	- Describe the circumstances and strategies for advocacy for services that promote health	Demonstrate basic advocacy skills	<i>“Advocacy, yes I think advocacy perhaps. Perhaps you can add because linking each of these: the water, food sanitation with a disease patterns in the area where they do live as they certainly can identify the health problems and in fact you know” (PH1). “Advocacy is an essential component, how do we encourage the change of an environment that will be healthy?” (PH1).</i>
Health advocate Communicator Collaborator		- Identify and collaborate with community structures and partners from other sectors - Explain ways to mobilise communities using appropriate community resources	- Plan community entry - Form partnerships - Engage in intersectoral action - Identify key stakeholders	<i>“It’s how do you as a practitioner, if you are a medical doctor, how do you interact with the agencies and the community?” (PH6). “If someone wants to join a support group for people with motorneuron disease, here is who you get in touch with. This is how we can introduce you and do something practical and useful. So, people are often not aware actually of what is available out there. They would be staggered at the number of HIV organisations and NGOs that are offering services and longing to actually help your patient” (PH6).</i>
Communicator Collaborator		- Participate in team building in order to build partnerships	Demonstrate team work	<i>“So, I think we should be also spending quite a lot of time teaching our students about the whole health team and what’s available out</i>

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
		- Demonstrate understanding of power relations among people		<i>there in a public health setting...they can immediately say hang on, I'm going to have a patient like this one day"(PH6).</i>
Professional Communicator		- Explain the implications of the major ethical and legal frameworks in SA such as the Constitution, Bill of Rights, Patient Rights, Charter, Batho Pele and the Right to Health (UDRH/ CESCRR/ICCPR) - SAHRC	Identify human rights violation and what to do about it	<i>"I would like the University of PTA student to understand public health as a, the fraternity that gives you the social consciousness of how to practice as a doctor" (PH3).</i>

Although not absent there was less emphasis in the SHSPH discussions on teamwork. This apparent lack of interest could be because 'teamwork' is a separate golden thread at our university (Kruger, 2008:2). The SHSPH discussions also emphasised the "social consciousness" (PH3) of medical practice instead of knowledge of the various ethical and legal frameworks. This social consciousness did not include the knowledge of human rights violation beyond those related to health. Table 6-4 describes the proposed competencies related the fourth domain of diversity and inclusiveness.

Table 6-4: Proposed national public health competencies (diversity and inclusiveness domain)

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
Collaborator Communicator Health advocate	Inclusiveness and diversity	Demonstrate an understanding of the needs of specific and diverse groups – culture, educational and socio-economic	<ul style="list-style-type: none"> - Engage with partners, within health and outside health sector - Work in a multi-disciplinary team, multi-professional team - Engage with communities 	<i>“But being able also to work with other people and in fact you know to assess what are called the priorities...with the limited resources” (PH1).</i> <i>“The attitude of how do you work with somebody who is not medically trained...you work with a lot of people health promoters, environmental health officers...speaking the other language of another person and how to convey your message and that type of thing. So you’ll be a doctor in this team and you will identify this health problem caused by water. How do you convey that to this community?” (PH3).</i>

The medical curriculum in South Africa is based on a firm understanding of diversity, inclusiveness and the contexts that patients come from. As one block chair remarked: *“A person is a person because the person has context. It’s almost an Ubuntu⁹ thing”* (BC2). Both the proposed competency framework and the SHSPH discussions emphasise this contextualisation of health. The fifth domain – communication – is outlined in Table 6-5.

⁹ Ubuntu (or botho) is the Southern African notion of humanness and interdependency: an individual is defined in terms of his or her relationship with others – or stated differently – a person is not a person without others.

Table 6-5: Proposed national public health competencies (communication domain)

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
Communicator Health advocate	Communicate effectively	Effective communication strategies	<ul style="list-style-type: none"> - Interpret information for professional, non-professional and community audiences - Communicate effectively with individuals, families, communities, and clinical and non-clinical colleagues 	<p><i>“The one skill is also how to communicate with people who are not in your fraternity... now you need to communicate with community people ah traditional healers and all those people” (PH3).</i></p> <p><i>“The respect of you know how do you do the rapport...cause they teach them that but then a lot of these things will be happening in communities you know” (PH3).</i></p> <p><i>“Actually share the information, share the information and the knowledge gained out of this” (PH5).</i></p>

Even though communication is not solely a public health competency it is a common inclusion in public health competency frameworks. Differences of opinion on the importance of communication – especially communication with communities – are rare. Similarly the proposed competency framework and the SHSPH workshops’ participants are in agreement on the inclusion of communication as a competency. In Table 6-6 the sixth domain that relates to policy and programme planning, implementation and evaluation is laid out.

Table 6-6: Proposed national public health competencies (policy and programme planning, implementation and evaluation domain)

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
Professional	Legislative/ regulatory frameworks governing health	<ul style="list-style-type: none"> - Appreciate that health practitioners operate within a regulatory framework: <ul style="list-style-type: none"> - National legislation - International treaties - Name key national legislation and international treaties and policies that govern health practice in SA 	<ul style="list-style-type: none"> - Be able to discuss the legislative frameworks that influence health and the management of health services 	<p><i>“For the understanding that you function and the prescribed system which is the health system um and that system is governed by policies with pieces of legislation that will impact on how you function as a doctor so the whole introduction of how the HPCSA and that, the whole understanding of that legislative framework and the Health Act” (PH3).</i></p> <p><i>“The understanding that you function in the system and there are pieces of legislation that you should adhere to then we would have done – I think – our bit” (PH3).</i></p>
Scholar Leader and manager	Public health tools for health problems	<ul style="list-style-type: none"> - Describe the application of public health tools to design interventions to address health problems - Apply the planning cycle - Demonstrate understanding of the principles of quality of care and the principles of quality improvement - Apply the audit cycle 	<ul style="list-style-type: none"> - Apply public health approach in clinical practice - Apply the planning cycle framework to plan a health intervention - Do a quality improvement intervention - Apply an audit cycle and tool to evaluate the 	<p><i>“And if they can do, can develop their skill to be able to process that information for themselves into...even if they don't pass it on but it will generate some in fact understanding and in fact a response from them about a problem when they do identify it” (PH1).</i></p> <p><i>“[students can use the] primary health care tool kit for assessing clinics by the office of standards of compliance” (PH3).</i></p>

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
			performance of a health facility or programme	
Medical practitioner Communicator Scholar	Disease and injury prevention	<ul style="list-style-type: none"> - Demonstrate understanding of the concept of prevention - Describe the levels of prevention framework - Describe the principles of screening as a secondary prevention strategy - Describe the reasons behind screening health programmes in SA - Outline the properties of screening tests (sensitivity, specificity, and predictive value) - Explain the immunisation schedule in SA - Demonstrate understanding of the principles of an effective immunisation programme 	<ul style="list-style-type: none"> - Apply the 'levels of prevention' framework to recommend disease prevention interventions - Conduct screening with patients - Administration of immunisations 	<p><i>"Prevention of childhood illnesses. And that would include in fact nutrition, it would include in fact immunisation" (PH1).</i></p> <p><i>"Then there is the prevention side- specific prevention. I think in fact you know the various departments do deal with prevention for example, immunization. Child health does deal with immunization, but what we do need is in fact a far more coordinated approach of the whole range of preventions not only as it applies to children but as it is applied to across the board" (PH1).</i></p> <p><i>"Prevention as well. I think in fact you know with the one element as well that places public health in a better position is there are preventive interventions for certain illnesses that should be known...not only should they know it but they should have an understanding of how much, by how much can we, reduce in fact you know the burden of disease, by choosing this option" (PH1).</i></p>
Medical practitioner	Health programmes	<ul style="list-style-type: none"> - Identify and describe key current national programmes 	Apply clinical and public health guidelines in practice	

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
Scholar		to address health priorities (e.g. MCH, HIV/TB etc.) - Describe the elements of a good health programme - Explain why clinical protocols and guidelines are important, how they are developed (i.e. based on evidence)		
Medical practitioner Collaborator	Public health emergencies	- Describe what constitutes a PH emergency - Understand own role in a public health emergency	Be able to describe the public health emergency response	<i>“That concept should come up when you are training this person that when you are going to the community that ... you must have a state of an alarm that something is happening in the community whether you see at least 10 patients or 5 patients from the same community I can't really say it's dysentery or bloody diarrhoea even if it's not bloody diarrhoea they can always [have] tinesmus. You see if somebody is coming with tinesmus you'll suspect that there must be something” (PH5).</i>
Scholar Leader and manager	Monitor and evaluate a health intervention	- Describe the M and E framework - Know the main health indicators (e.g. IMR, MMR)	- Apply an appropriate framework (e.g. inputs, process, outputs, outcomes, impact) to monitor and evaluate a health intervention	<i>“Continued monitoring that is in fact monitoring in ante-natal care as well as in fact you know under 5, monitoring of the under 5s to detect at an early stage a problem and then in fact to correct it” (PH1).</i>

The competency framework places an emphasis on international treaties, which was not apparent in the SHSPH workshops. Also the use of tools such as an audit tool or a framework to monitor and evaluate a service or a health intervention was framed differently as an expectation that medical students should be aware of and participate in quality assurance programmes but that the responsibility for evaluation is at a specialist level. The SHSPH participants did mention medical students' understanding or describing the key current national programmes or the related knowledge and skills. One possible reason is that the entire medical curriculum is orientated to these "*priority conditions...TB and HIV and communicable and non-communicable diseases...the major health problems*" (PH1) that are the focus of these national programmes. The final table (Table 6-7) is the knowledge and skills competencies related to the domain of leadership.

Table 6-7: Proposed national public health competencies (leadership domain)

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
Medical practitioner Professional Collaborator	Professionalism	<ul style="list-style-type: none"> - Discuss ethical principles - Explain public health ethics to manage self, others, information and resources 	<ul style="list-style-type: none"> - Apply ethical reasoning to a health problem - Practice ethically 	<i>“So if you have that attitude of...equity and all those finer skills which they do learn in ethics” (PH3).</i>
Professional Collaborator		Explain the role of leadership in health care	Participate in maintaining organisational standards	<i>“In fact in this context here to put a different perspective of leadership: enabling others, showing people in fact which direction to go and enabling them to really in fact to be committed to that cause. And that type of leadership is not the usual type of leadership that exists in clinical settings. The community- level setting you need in fact a different approach” (PH1).</i>
Professional Collaborator		Explain the role of a team approach in health care	<ul style="list-style-type: none"> - Demonstrate an ability to build community and own capacity by sharing reciprocal knowledge, tools, expertise and experience - Develop personal skills 	<i>“So, I think we should be also spending quite a lot of time teaching our students about the whole health team and what’s available out there in a public health setting” (PH6).</i> <i>“Doctors must learn that they are team players... not necessarily the captain.. you are a member of a team and therefore 1) dependant on other people 2) other people are dependent on you and 3) you all have to</i>

CanMEDS role		Knowledge	Skills	Illustrative responses SHSPH
				<i>work, to work, together towards a common goal” (PH1).</i>

The competencies of ethics and leadership are not limited to public health but their inclusion in this framework and in our discussions is an acknowledgment that “professionals...have special obligations and responsibilities to acquire competencies and to undertake functions beyond purely technical tasks – such as teamwork, ethical conduct, critical analysis, coping with uncertainty, scientific inquiry, anticipating and planning for the future, and most importantly leadership of effective health systems“ (Frenk *et al.*, 2010:1951). The emphasis on transformative learning in the Frenk *et al.* article (2010:1924) is about developing leadership attributes – a clear inclusion in the CanMEDS role framework as well as this proposed public health competency framework.

The purpose of including leadership in the competencies for medical students is that these students can develop as change agents to bring about the necessary changes in the health system that they will one day find themselves in. However, the competencies described in the leadership domain of this proposed framework lack this emphasis of becoming change agents. The only reference to being a change agent is in the ‘partnerships, collaboration and advocacy’ domain where one of the desired graduate attributes or behaviours is described as ‘receptive to being a change agent’ in Table 6-8.

Table 6-8: Desired graduate attributes or behaviours associated with the proposed public health competency domains

Public health domain	Desired graduate attributes or behaviours
Assessment and analysis	- Demonstrate vigilance to understanding the burden of disease in the community
Diversity and inclusiveness	- Exhibit caring attitudes towards patients - Demonstrate cultural sensitivity
Policy and programme planning, implementation and evaluation	- Demonstrate a continuous quality improvement to practice - Encourage screening activities in patients and population
Leadership	- Demonstrate constant ethical conduct - Practise in a way that recognises resource constraints

In the SHSPH workshops the emphasis on medical students developing as change agents was phrased in a more active tone: “*When I talk to the second years I always tell them that*

in public health you learn one thing – that [you] are not a passive recipient and that's the one thing that you come out as" (PH3).

6.2.1 Discussion

Despite only being in a draft format, these proposed public health competencies are important as they represent agreement among all the participating South African universities. This development is significant as it was the lack of agreement among medical colleges in the USA that led to the external review by Flexner (Barzansky, 2010:S20). This public health competency framework also represents a response to the criticisms that there has been a “mismatch of competencies to patient and population needs” (Frenk *et al.*, 2010:1923).

The public health competency framework has a variable focus at times with some competencies such as being able to monitor and evaluate a health intervention likely to be at a specialist level. Other competencies such as being able to describe the effect of climate change have little relevance for clinical practice. The repetition of certain competencies such as teamwork over more than one domain is not unexpected, as teamwork is a critical cross-field outcome (Gawe & Heyns, 2004:170). In addition Frenk *et al.* emphasise teamwork as an outcome of core competencies that is necessary for transformative learning systems (2010:1952).

The proposed South African public health competency framework contains elements of both a scientific research approach as well as public health practice – the dual focus of the Welch-Rose report of 1915 – and has very few elements that could be described as the health administration typical of the European models of public health (Fee & Bu, 2007:977). This composition is suggestive of a USA-based competency model, which is distinctive in its emphasis on the knowledge of hygiene (e.g. epidemiology) and training public health leaders (Fee & Bu, 2007:977). However, the leadership competencies in the South African framework centre more on maintaining the *status quo* than developing public health leadership qualities that disrupt the *status quo*. This conformist approach explains the muted inclusion in the South African framework of becoming a change agent despite the emphasis by Frenk *et al.* that change agents are not only the outcome of

transformative learning but are critical for the transformation of health systems (2010:1951).

It is understandable that being a change agent is a problematic inclusion in a competency framework, as a competency “should be expressible in terms of measurable behaviour” (Albanese, Mejicano, Mullan, Kokotailo & Gruppen, 2008:251). Medical students do not have the social capital required to bring about meaningful and measurable change within health systems. But my counter argument is that leadership is an equally problematic inclusion but, despite this difficulty, it has been included in the competency framework. I would argue that while leadership is a generic competence it is change agency that is the singular contribution of public health. Change agents need to have a population perspective and base their actions on the cardinal values of relevance, quality, cost effectiveness and equity – the values that underpin public health.

In general the SHSPH workshops’ participants laid substantially more emphasis on the practical application and relevance of public health for clinical practice because “*an understanding and attitude towards public health per se...as an integral part of the practice of medicine. So that the, because if we are aiming it at medical practitioners, it must be something that's going to be relevant to each and [every] one of them*” (PH1).

In the SHSPH workshops we laid emphasis on not adding to the theoretical load as what “*we must avoid is trying to teach them a whole lot of theoretical stuff that bears no relation, whatsoever, because they are going to quickly see that this is wasting their time. Their curriculum is very full. They've got an awful amount of work and studying to do and now you are expecting them to do this other stuff, which they can see it is not going to add any value to their practice*” (PH6). This concern is justified, as medical students easily conclude that public health is a waste of time when they can't see the relevance (Tyler *et al.*, 2009:1308).

Some of the SHSPH academic staff confirmed that they have had this insight on their own and have subsequently changed their facilitation of learning practice: “*I've tried to make it a bit more focused. To say you know it's all the stuff that...you would need as a clinician*” (PH2). Not everything can – or should – be in the curriculum. A pragmatic approach would be to ensure a focus on the “*relative priority conditions in fact you know in the given*



country. [It] doesn't mean that they will always need to practice here but wherever anyone goes that should be the consciousness of their mind – the major health problems” (PH1).

While the curricular intentions of the SHSPH were to focus on certain key aspects of public health that are relevant to clinical practice, the horizon of public health is variable and, as such, raises the question of how we prepare our graduates for a future reality such as the proposed National Health Insurance as “*we need to prepare ourselves for the changes that are coming for the future*” (PH1).

The HPCSA regulations, the modified CanMEDS roles, the national meetings and the internal SHSPH workshops provide some indication of where the boundary line lies with regard to the inclusion of public health in the medical curriculum. But “no single set of educational objectives [or competencies] will necessarily apply similarly to every medical school, as educational contexts differ” (Gillam & Maudsley, 2009:127). One of the obvious differences in educational contexts is the choice to integrate public health in the medical curriculum or to separate it as a stand-alone inclusion. As a result these competencies (if agreed upon) will find different emphases at each university.

6.3 Curricular emphases at our university

This practitioner research has provided a rare opportunity to re-examine not only my/our understanding of public health, but to re-examine our curriculum because:

Curricula often become closely linked to historical legacy that codifies the traditions, priorities, and values of the faculty in that profession. Over time, the curriculum is rarely re-examined but is only slowly modified to accommodate new information. Not uncommonly, schools change the objectives to meet what the faculty want to teach so that the curriculum drives the objectives, rather than the wished for learning objectives driving the curriculum. By focusing on the outcomes of education, the approach is more transparent and therefore accountable to learners, policy makers, and stakeholders (Frenk et al., 2010:1943).

The departure point for our reflections and debates in the first workshop at the SHSPH was stimulated by the key question: ‘*What are we hoping to achieve with the inclusion of*

public health in the medical curriculum? Probe words were used such as ‘student-centred’, ‘outcomes-based’, ‘competencies’ etc. to uncover what was meant.

6.3.1 Intentions of including public health in the medical curriculum

A key outcome of the internal discussions at the first SHSPH workshop was a revised description for the public health golden thread. Our new understanding of public health in the medical curriculum is reflected in the proposed revised outcome statement: ‘To demonstrate the ability to apply core population health knowledge, skills and values in clinical practice’. This outcome statement is virtually diametrically opposed to the current outcome statement: ‘To evaluate human disease occurrence, causation and control in a health care system’. The consensus was that this description is also in better alignment with what is described in the HPCSA regulations (HPCSA, 2009) so that we can answer the question: *“To what extent are we...meeting in fact you know their training needs as stipulated in fact by the HPCSA? So that’s what we need to be looking at...a decision arrived at by the HPCSA was informed by years of experience and therefore in selecting those core essential elements they take into account all the other factors: competition for time as well as the basic relevance in fact of, for, public health”* (PH1).

At the University of Pretoria (UP) the primary intention of the inclusion of public health in the curriculum is to engender *“an understanding and attitude towards public health per se...as an integral part of the practice of medicine. Because if we are aiming it at medical practitioners, it must be something that’s going to be relevant to each and every one of them”* (PH1). This stress on ensuring relevance in medical practice clarifies some of the differences seen between the proposed public health competency frameworks and the SHSPH discussions.

Making public health relevant to clinicians is clearly paramount as *“people don’t go and study an MBChB in order to become public health people. They become public health people afterwards or through some other avenue, but that’s not what they come to study. They come to learn how to be good clinicians”* (PH6). And, although it is difficult to decide which components of public health should be included in the medical curriculum, the inclusion remains essential not only for the reasons cited in the literature (Frenk *et al.*, 2010:1924; Boelen & Woollard, 2009:887; Riegelman, Albertine & Persily, 2007:1;

Woodward, 1994:391) but also “*If you know we completely...ignore it and cut it out of the syllabus...nobody's going to develop that interest*” (PH2) and the opportunity of inciting interest in public health as a future career option is lost (Jeffrey, 2011:23; Tyler *et al.*, 2009:1310; Rosenberg, 1998:186). The structuration theory by Bourdieu (Schryer *et al.*, 2003:65) suggests that socialisation during the years of study shapes the future actions (or habitus) of the medical students and so, by extension, their career choices (Sternszus, Cruess, Cruess, Young & Steinert, 2012:1282). This structuration theory makes a powerful argument for the purposive inclusion of public health medicine as a career option that the proposed public health competency framework suggests.

The gamut of public health intentions are along a continuum from epistemological intentions to ontological intentions. The epistemological intentions of including public health in the medical curriculum at UP have been viewed against the proposed competency framework (Section 6.2).

In contrast to the proposed competency framework the emphasis in the SHSPH discussions (both the workshops and the interview with the national expert) was more ontological in nature and less emphasis was placed on creating a finite list of knowledge or skills that are considered ideal. Our emphasis revolved around the desired ontological values of our students or in short – the kind of doctor we wish to graduate. This focus was in part due to the acknowledgment that a focus on knowledge and skills would result in a problematically long list so that “*they need to know this and they need to know this, they need to know this*” (PH1). This participant has a justifiable concern when one looks at the long list of proposed competencies.

Rather there was agreement that “*it is important that doctors have an awareness and appreciation of the context in which they are working. That's a philosophical thing...If you are a doctor in our kind of democratic society, you ought to be aware surely of the context in which you work and in which people get sick and...you ought to be politically interested and sociologically interested in the conditions that make people sick and you should surely as a doctor not just think well how am I going to make the most money, but also be concerned about advocacy and your opinion is going to be asked*” (PH6). This notion that the medical profession is powerful and in a position to influence public policy and public

opinion is one of the major arguments for the inclusion of public health (Woodward, 1994:391).



This ontological intention was captured as a social consciousness that UP would like to engender in its graduates: *“I would like the University of Pretoria student to understand public health as a fraternity that gives you the social consciousness of how to practise as a doctor”* (PH3). This social consciousness is a similar construct to social responsibility that Frenk *et al.* (2010:1933) describe as a competence that is the irreplaceable contribution of public health in the medical curriculum. Social consciousness requires the doctor to see beyond the individual patient in the consultation room because: *“Yes you might be treating this patient but this patient comes from a community and this community has got this particular community diagnosis and it becomes pertinent and, in fact, for a third-world country it's non debatable that we should include public health in the undergrad curriculum”* (PH3). This emphasis on social consciousness in the SHSPH discussions suggests that the inclusion of public health in the medical curriculum relates to the ontological nature of medicine – becoming a medical doctor – that Ozolins, Hall and Peterson (2008:608) refer to.

But learning how to become a medical doctor is influenced by role modelling (Sternszus *et al.*, 2012:1282; Cruess, Cruess & Steinert, 2008:718-721; Kenny, Mann & MacLeod, 2003:1203), which together with the structuration theory by Bourdieu (Schryer *et al.*, 2003:65) explains how medical students are socialised into their professional identity. But role modelling in public health is problematic, as there is a small pool of candidates: *“My one concern for this whole thing is that there (in terms of the five-star doctor) is the lack of role models”* (PH2). The five-star doctor model developed by Boelen (1993:6-7) is proposed as the ideal profile of a doctor to be able to provide the range of services to meet the four cardinal values of public health: relevance, quality, cost effectiveness and equity in health.

The lack of public health role models (Maeshiro *et al.*, 2010:214) is in part the result of the dominance of clinical competence as a desirable quality of role models in medicine (Cruess, Cruess & Steinert, 2008:718). These are *“doctors whose emphasis is on his clinical work and on research. And you know what is seen as excellence it is you know being published in the Lancet or performing the latest you know innovative surgery and*

you know that's what everybody aspires to be" (PH2).

A second challenge is where learning takes place: *"For as long as the teaching and training in fact you know is largely in the clinical setting and largely in academic complexes ah the role models that the students are seeing...are providing excellence in that ah in that setting"* (PH1). Additional settings such as community-based settings are little more than alternative clinical settings, as there are seldom public health professionals placed there.

The clear acknowledgment that public health professionals are seldom found in the kind of settings that medical students find themselves in is exacerbated by a very small pool of public health medicine specialists and public health professionals in South Africa.

It is therefore unlikely that medical students will be able to identify a public health specialist from either their lecture hall or their practical sessions. In a Canadian study most medical students could not identify a public health medicine specialist from their undergraduate experience (Tyler *et al.*, 2009:1310). Medical students were also unable to link the public health in their curriculum to the practice of being a public health medicine specialist (Tyler *et al.*, 2009:1310).

In an environment where negative role modelling is as likely as positive role modelling (Cruess, Cruess & Steinert, 2008:718-20) it is essential that we need positive role models in public health in the undergraduate curriculum so that we can "improve their [medical students'] understanding of public health practice as well as help create a more positive attitude to public health" (Tyler *et al.*, 2009:1310).

The workshops on exploring our intentions of including public health in the medical curriculum revealed our philosophies of practice. Our actual practice was explored through the block chair interviews (Chapter 4, Section 4.6.4) and a review of the block books.

6.3.2 Curricular emphasis at our university: the block books

Because public health is included as a golden thread, the SHSPH has in a sense ceded control over the content, as each block chair has the academic autonomy to include public health as he or she chooses. The interviews with the block chairs exposed a fundamental insight: that clinicians do not always label the public health aspects included in their blocks as ‘public health’ – not surprising as the boundary lines are neither absolute nor well described.

All the 2010 block books were reviewed and coded (Chapter 4, Section 4.7.1.5.1) for not only the public health topics but a judgment was made on the required cognitive domains with the use of Bloom’s taxonomy (Krathwohl, 2002:212) depicted in Figure 6-3.

The findings of the block book review are displayed in Table 6-9 and the red cells indicate that the block books were not coded while empty cells indicate that no content was found during the coding.

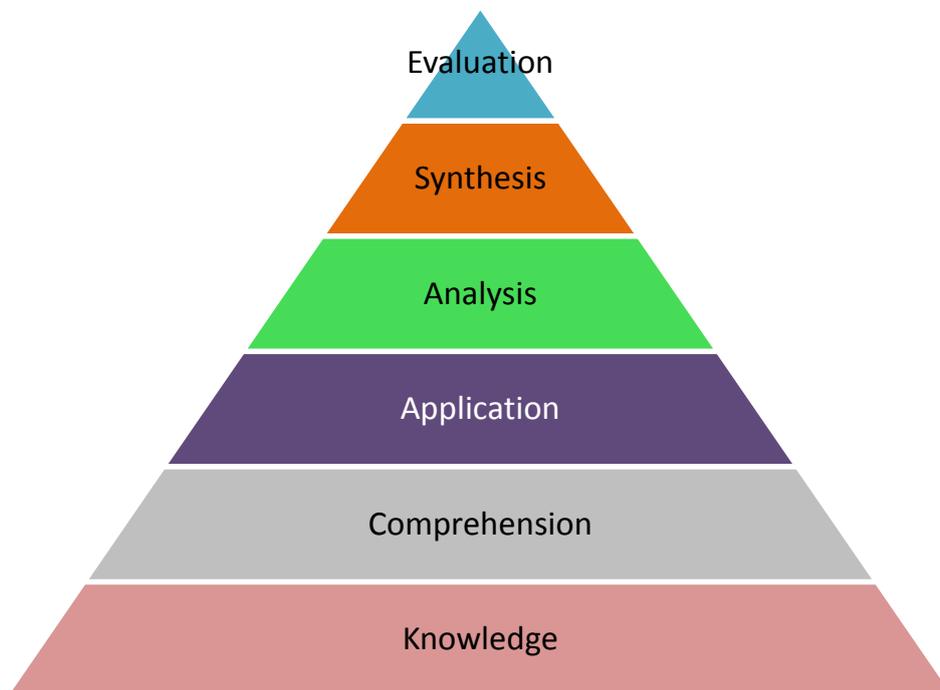


Figure 6-3: Bloom’s taxonomy (Krathwohl, 2002:212)

Table 6-9: Public health content of block books (2010)

Year of study	Block SMO SA	Description	Code	Epidemiology and biostatistics	Health Policy and management	Health promotion and prevention	Disease control	Environmental and occupational health	Health economics	
1		General physics	PHY 131							
		People and their environment	MGW 112							
		Molecular and cell biology	MLB 111							
		Computer literacy	CIL 111							
		Medical terminology	MTL 180							
		First course in chemistry	CMY 151							
		Science and world views	FIL 155							
		Academic literacy	EOT 110							
	SA 1	Orientation	GNK 120							
	1	1	Molecule to Cell	GNK 123						
			Cell to Tissue	GNK 124						
			Tissue to Organism	GNK 125						
			SMO 121	SMO 121						
	SA 3	People and their environment II	GNK 127							
		Longitudinal clinical attachment programme (LCAS)	LCP 180							
		Academic literacy	EOT 120							
		Sepedi, Zulu, Afrikaans	SMO 121							
SA 14	Introduction to clinical pharmacotherapy	GNK 128								
2	3	Homeostasis	BOK 280							
		Intermediary metabolism	GNK 211							
		Regulation and control	GNK 212							
		Internal milieu	GNK 213							
		General procedural skills	GPS 280							
	SA 4	Anatomy (dissection)	GNK 288							
	4a	Pathological conditions	BOK 285							
		General pathology and Immunology	GNK 214							

CHAPTER 6

Intentions and Aspirations

Year of study	Block SMO SA	Description	Code	Epidemiology and biostatistics	Health Policy and management	Health promotion and prevention	Disease control	Environmental and occupational health	Health economics
		Principles of neoplasia	GNK 215						
	4b (GNK 287)	Principles of infectious diseases	GNK 216						
		Infectious diseases	GNK 217						
		SMO 281	SMO 281						
		LCAS	LCP 280						
	2	People and their environment III	BOK 284						
		SMO 211	SMO 211						
	SA 5	Introduction to clinical medicine	GNK 283						
SA 9	Basic emergency care	GNK 286							
3	18a	Pharmacotherapy	GNK 585						
	6	Heart and blood vessels	GNK 381						
		LCAS	LCP 380						
		SMO 311	SMO 311						
	7	Lung and Chest	GNK 383						
	SA 12	Haematological malignancies	GNK 386						
	8	Abdomen and breast	BOK 380						
		Abdomen and abdominal complaints	GNK 313						
		Mamma	GNK 314						
	SMO 380	Abdomen and breast	BOK 380						
	9	Pregnancy and neonatology	BOK 382						
		Pregnancy	GNK 321						
		Neonatology	GNK 322						
SMO 382	Pregnancy and neonatology	BOK 382							
13a	Nervous system	BOK 482							
SA 10	Elective	GNK 488							
4	13b	Nervous system	BOK 482						
	10	Disorders of childhood	GNK 481						

CHAPTER 6

Intentions and Aspirations

Year of study	Block SMO SA	Description	Code	Epidemiology and biostatistics	Health Policy and management	Health promotion and prevention	Disease control	Environmental and occupational health	Health economics
		LCAS	LCP 480						
	11	Genito-urinary conditions	BOK 480						
		Genital conditions	GNK 412						
		Urinary conditions	GNK 413						
	SMO 411		SMO 411						
	14	Musculoskeletal conditions	GNK 483						
	12	Head and neck	GNK 485						
	18	Pharmacotherapy	GNK 585						
	SA 11	Skin	GNK 487						
	SA 8	Ageing	GNK 486						
	SA 7	Endocrinology	GNK 484						
	SA 6	Managed health care	GNK 385						
5	15	Psychiatry and social dysfunction	GNK 581						
	16	Health and Health Systems	GNK 582						
	SMO 511/512	HIV and drugs	SMO 511/512						
	17	Traumatology	GNK 583						
		LCAS	LCP 580						
	18b		BOK 580						
		Pharmacotherapy	GNK 585						
		Anaesthesiology	GNK 586						
6	SA 13	Diagnostic and evidence-based medicine	GNK 689						

The summary presented in this table is only one possible interpretation of the inclusion of public health in the curriculum. Another reviewer could allocate the same content to an alternative topic area of public health. What is important, however, is not the detail of whether, for example, a case study should be coded as disease control rather than health promotion and prevention; rather whether the case study provides a learning opportunity around a public health topic or not.

The review of the block books (2010) has resulted in a crude aerial map of the inclusion of public health in our medical curriculum. Part of the crudeness is because some of the objectives that relate to public health did not have a verb and had to be categorised at the lowest level of Bloom's taxonomy. Johnson, Donovan and Parboosingh express a similar concern in a large Canadian study that the verbs used to describe learning objectives in public health were vague and need to be specific in order to be meaningful (2008:417).

The use of the block books in this exercise constitutes a secondary use of the block books, whose primary audience is the medical student, so interpretation can only be tentative. Conclusions such as there is little progression of learning to higher-order cognitive thinking skills (using the Bloom's taxonomy) in the more senior years is questionable. First, the block books are probably poor descriptions of actual educational practice and, second, the proposed public health competency framework (Section 6.2) focuses on the knowledge, comprehension and application categories of Bloom's taxonomy and does not suggest higher-order cognitive thinking. This omission is perhaps a weakness of the current version of the competency framework. The low profile of the environmental and occupational health and medical economics is notable in the curriculum map. Although some blocks clearly do not hold any possibility to include public health (e.g. GPS 280 – General Procedural Skills) there are those that do. One such block was 'Lung and Chest' (GNK 383) whose block book did not describe any learning opportunities about public health such as occupation-related lung conditions.

What was unexpected was the more widespread permeation of public health that was originally thought – including the first semester of the first year. Review of the block book for the 'People and their Environment' (MGW 112) block was not part of the original review but I was prompted to enquire about this block after the results of the opinions of first-year medical students indicated some satisfaction with their educational experience of public

health **prior** to their arrival at our Faculty (Section 6.5.2).

The review of the block books – although useful – is an empty exercise without an understanding of the practice context. The block chair interviews highlighted the final boundary that influences our curricular intent: the balance between an internal (or local) focus and an external (or global) focus in the medical curriculum.

6.3.3 Curricular emphasis at our university: global versus local relevance

The notion of ensuring both global and local¹⁰ relevance in the medical curriculum is both evident in the literature that refers to: “Locally responsive and globally connected teams” (Frenk *et al.*, 2010:1951); the vision of our own university: “To be a leading research-intensive university in Africa, recognised internationally for its quality, relevance and impact, as also for developing people, creating knowledge and making a difference locally and globally” (University of Pretoria, 2013); the HPCSA regulations: “Ensuring relevance to [local] health needs while satisfying international standards of excellence” (HPCSA, 2009); and Area 9 of social accountability: “Balancing global principles with context specificity” (GCSA, 2010:3).

Block chairs reflected on the ways in which they ensure that their input in the medical curriculum is not only globally relevant but also locally relevant. The intrinsic tension between the two is reflected in Table 6-10, which juxtaposes the duality of practice. Grbich (2007:216) defines juxtaposition as “the placing of one set of information against another in an echoing manner in order to bring out the differences”. Readers can read these two perspectives in whichever way they prefer and different fonts are used in Table 6-10 to amplify the sensation of seeing the differences.

The themes that emerged from the discussions on ensuring the global relevance of the medical curriculum were: personal professional development; use of tools; and expert

¹⁰ Local refers to those people that the University of Pretoria serves, from the broadest national perspective to the narrowest client population perspective.

review. The reflections on ensuring the local relevance of the medical curriculum unearthed a rich thematic seam: the natural resource of diversity.

Table 6-10: Juxtaposition of global and local relevance

Global relevance and global citizenship Because “ <i>the one is absolutely essential for the other one</i> ” (BC1)	Local relevance and local citizenship Because “ <i>your training should reflect what’s happening in your community</i> ” (BC 2)
<p>Personal professional development</p> <p>Respondents described formal professional medical education courses and reading journals as a professional development strategy to ensure that their work is globally relevant: “<i>FAIMER...[and] from the journals. So that is basically how I do it, I talk to colleagues, networking [and] that is basically it and I must say I don’t sit and read over my weekends</i>” (BC3).</p> <p>Respondents also emphasised belonging to the global communities of practice: “<i>The European-Belgian connections...the concept of community-oriented primary care, funny enough, I got from Belgium and...connections in Africa...it just confirms the need for local relevance but it also confirms the need to be clinically good</i>” (BC1).</p> <p>The second strategy is the use of a range of tools to ensure that both the clinical staff and their students are global citizens. “<i>In [subject], for example, they have a really nice little book which is the book of abbreviations where they have a short summary of <u>all the studies</u> they have done with names and that sort of gives you a bit of world perspective</i>” (BC2).</p>	<p>The natural resource of diversity</p> <p>This diversity extends beyond the diversity of the student body to the diversity of the quadruple burden of disease; the diversity of the curriculum in its search for balance between breadth and depth and finally the diversity of personal resources within the students themselves: problem solving, self-reliance and resilience.</p> <p>“<i>Where I think actually we contributed in um dealing with values and values diversity specifically and taking diversity as an asset...we are encouraged to do by our coat of arms for example... there is uptake globally of what we have got to offer from our experience with education and education in diversity specifically. Dealing with diversity and diversity of various kinds</i>” (BC 10).</p> <p>The quadruple burden of disease offers a diverse learning opportunity for students because “<i>we are in an amazingly unique position...Because on the one hand we say we want prevention, we want preventative medicine and on the other hand we say look at the evidence we still have to be curative</i>” (BC 2).</p> <p>Self-reliance and resilience</p> <p>One of the realities is that the learning environment is resource limited in many tangible ways. “<i>People</i></p>

Global relevance and global citizenship Because “ <i>the one is absolutely essential for the other one</i> ” (BC1)	Local relevance and local citizenship Because “ <i>your training should reflect what’s happening in your community</i> ” (BC 2)
<p>“<i>Well ja ah global perspective would be, be referencing you know <u>international protocols</u>...I think at the moment we are able to offer the best available care so I know especially certainly from a [subject] side um that we are able to offer whatever is available globally. I know our treatment protocols are the same as they would be getting if they were in [international treatment sites] um in fact a lot of our protocols come from either of those centres</i>” (BC5).</p> <p>“<i>Through IMCI which is a <u>World Health Organisation programme</u>” (BC3) and some universal norms such as “<i>patient-centredness because that is a globally acceptable thing</i>” (BC3).</i></p> <p>Use of the university library and training on how to use the library was cited: “<i>They learn to <u>access journals</u> and to get to the information</i>”(BC3). But also more structured engagement with key resources such as “<i>the <u>RHT- Reproductive Health Library</u>. It is on the same principles of Cochrane but it is specifically for under-resourced developing countries so we prefer them to use those two databases</i>” (BC7).</p> <p>Global relevance is emphasised in the curriculum through “<i>practising <u>evidence-based medicine</u> and we have actually got an SMO that focuses on the interpretation of evidence-based medicine</i>” (BC7). The link between evidence-based medicine (EBM) and global relevance is</p>	<p><i>have different ways in which to teach them how to do a skill and some of them tell me that they get videos from the internet which they then watch. Now once again it depends whether you are working in Mayo clinic or...[our] clinic, you don’t always have all of the equipment and things especially drapes and all those things necessary</i>” (BC 6).</p> <p>These limitations offer the opportunity to learn other skills such as problem solving.</p> <p>“<i>Do the best you can with what you have and you need to improvise a little bit now and again and I think the application of the result is universal now in other words once you have got an answer there is a universal protocol that you follow and those kinds of things they also get from textbooks, from ClickUP, from the internet, etc. so it is not only what I give them. Many of them go and access the skills on the internet</i>” (BC 6).</p> <p>The role of the academic is extended to role modelling the behaviour (such as problem solving) that one would want in students. “<i>The only way which I teach them is I ask them whether they know about Mcgyver and stimulate them in the sense to say that whenever there is a problem you need to find a solution but how you find it I can’t teach you but you need to make use of all your resources that you have got and then come up with a plan</i>” (BC 6).</p> <p>This preparation for self-reliance and problem solving is necessary to develop resilience “<i>for the</i></p>

Global relevance and global citizenship Because <i>“the one is absolutely essential for the other one”</i> (BC1)	Local relevance and local citizenship Because <i>“your training should reflect what’s happening in your community”</i> (BC 2)
<p>that EBM is based on international clinical trials.</p> <p>A final tool used was the use of cutting-edge <u>physical tools</u> of the trade: <i>“We now use endoscopic cameras and things”</i> (BC8).</p> <p>The final strategy described was the use of expert review: <i>“Well the block has been evaluated by an external examiner from the UK who works as an evaluator um and in that way the global um side of it is um put on the table”</i> (BC10).</p>	<p><i>hardness of a community service, we expose them...with a varying degree of depth with increasing competencies in the intern year [that] will allow them to be properly armed”</i> (BC 2).</p>

I have not made any attempt to resolve the tensions between the two kinds of relevance, as these tensions are authentic and intrinsic to our educational practice. One observation, however, is that the block chair reflections suggest that one way to ensure global relevance is to ensure local relevance. In short one has to be a local citizen in order to be a global one: *“If any doctor or health professional is functional and effective and responding to his or her local setup I will appoint that person with closed eyes anywhere in the world because you do not become locally effective and responsible...because I do not think you can be internationally worthy if you cannot be locally responsible”* (BC1).

Making our local position clear in the global context is an additional task for academic staff as students can view global realities as *“the real thing whereas the rest, the bread and butter sort of stuff might not be regarded as important”* (BC2). Having access to virtually countless resources at their fingertips offers our students global citizenship but calculating what is important for our own realities is not simple: *“And the student on the other side sits there and I think everything weighs kind of equally...most days [we see] more than one new patient with [condition], which is a lot and we see about one patient with [rare condition] every third of a year...yet the students will take the two chapters in the book as of equivalent value...if we don’t look at local relevance”* (BC2).

Our final contribution to global relevance is through generating knowledge by participating in research. Respondents claimed their global citizenship in the generation of knowledge through their own clinical and educational research: “*Well we do a lot of research in any case. Like, for instance, we did a number of articles on platelets and stuff like that and the effect of smoking on your fibrin networks*” (BC9). “*I presented some of the gradual shifts and development in educational strategies for the block at international fora where it was very well...quite a bit of discussion on teaching of values and values diversity where actually we contributed internationally rather than being on the recipient end*” (BC10). An advantage to contributing to the knowledge base through research is that students “*are able to offer really state of the art care...[and regarding clinical care] we don’t water it down because we are in Africa...it’s the same standard of care throughout*” (BC5).

6.3.4 Discussion

The national meeting around the public health competencies for medical students provides us with some provisional boundaries of what aspects of public health should be included in the undergraduate medical curriculum. As this competency framework is still a work in progress it is difficult to make any final comments on the framework, except to acknowledge that there remains substantial work to be done. The emphasis in the framework on observable and examinable knowledge, skills and behaviours (as an expression of values and attitudes) is aligned with the outcomes-based approach that such a framework represents. Perhaps worth noting is that the skills described in the framework are all cognitive skills and not hands-on practical skills. The omission of hands-on practical skills is aligned with the focus of public health which relies on the construction of meaning and the application of that meaning in new situations – or phrased differently public health relies on cognitive skills.

The first internal SHSPH workshop adds to the discussion of the competencies by offering some insight into what our particular intentions are with the inclusion of public health. This workshop was the first opportunity that academic staff has had to reflect on the questions: ‘*What are we trying to teach and how does this [topic] fit in?*’ These intentions included both philosophical aspirations as well as the practical intentions that were similar to the type of competencies included in the proposed public health competency framework. Some of the variations in emphasis can be explained by the presence of the other golden

threads in our curriculum that address some of these inclusions in the proposed framework.

The proposed public health competency framework represents all three types of learning described by Frenk *et al.* (2010:1924), with the emphasis placed on informative learning via the acquisition of knowledge and skills with the primary purpose of producing experts. The socialisation of students around values (formative learning) in the process of becoming a professional is included in the framework but is underlined in the ontological aspirations of the SHSPH. Also the framework includes, but does not emphasise, the development of leadership attributes or change agency abilities that are considered critical for transformative learning (Frenk *et al.*, 2010:1924). Perhaps the greatest contrast is that the ontological aspirations of the SHSPH use “language and concepts that emphasise the growth and development of people” (Hodges, 2010:S43) rather than the ‘production’ of competent medical practitioners.

The review of the block books highlighted unexpected inclusions and the variable concentration of public health in the different blocks. The variation is expected as not all the subject matter of the blocks is conducive to the inclusion of public health. The inclusion of public health topics also has to compete with other choices such as global and local relevance that block chairs have to consider.

The inherent duality between global and local relevance of educational and clinical practice adds another dimension to the discussion of the inclusion of public health in the medical curriculum. All of these dimensions compete to advance their position within the sphere of play in the medical curriculum (Bourdieu & Wacquant, as cited in Schryer *et al.*, 2003:66). This interplay between competing interests and the limited time to facilitate learning results in an additional tension in the public health education landscape.

While the proposed competency framework and the SHSPH workshops bring some clarity to the intention of including public health in the medical curriculum they also raise an important question: What are the constraints to including educational opportunities to ensure these competencies in the medical curriculum?

6.4 Curricular constraints

The University of Pretoria's choice of including public health as a golden thread in the undergraduate medical curriculum places the majority of the responsibility of facilitating learning about public health on the academic staff – the clinicians – from the School of Medicine. But regardless of the statutory and institutional requirements to include public health some internal constraints need to be overcome in order for those requirements to be met. The first constraint is the bane of all clinicians' lives: time.

6.4.1 Clinicians' time

Academic staff with clinical responsibilities face specific problems as posts are funded by the provincial government for service delivery. *“Our post filling is around clinical service load in the hospitals. So the CEO is not interested in the ‘nice to haves’; he is only interested in someone who is coming to work and going to see patients”* (BC4). This feature has an impact for ensuring a wide range of expertise from a curricular point of view. Even those already employed feel the burden: *“We are busy clinicians”* (BC4) with other academic pressures such as research. *“Clinicians are just too busy with the expectation of clinical load to actually pay much attention to these other issues...the research is my midnight to six am time. That's my research time. It doesn't happen during office hours”* (BC4). The ever-increasing numbers of medical students also consume more time in other ways: *“So, you are very limited in what you can do and cannot do because we have to...I think...a lot of the time is taken on evaluating and assessments and stuff like that”* (BC8).

But it is not only clinicians who are responsible for the teaching of public health. The responsibility is shared with the SHSPH.

6.4.2 SHSPH academic staff's time

The major constraint identified by the SHSPH workshop participants is that of time. In this case the limited time is in the curriculum and is not the waste of precious time that Woodward refers to (1994:390). The low numbers of the academics in the SHSPH who attended the workshops could, however, be an indication that some do indeed consider

the teaching of medical students the waste of energy, time and temper that Woodward refers to (1994:390).

Two aspects of time constraints emerged from the workshop discussions. The first constraint was the total amount of time in the curriculum: “*We are sort of caught in the middle here because you know in the limited time we have, we’re trying to do a bit of both and not really achieving you know either goal [overall understanding of public health or a focus on the key elements of the public health that would make them better physicians]”* (PH2). The time constraints are a particular barrier for experiential learning or cooperative learning that are perceived as being more time consuming. Cooperative learning is described as “working together to achieve shared goals...In cooperative situations, individuals perceive that they can reach their goals only if the other group members do so (Johnson & Johnson, 1991:6). These time constraints promote didactic teaching because to do anything else: “*There must be sharing and two days cannot be adequate enough in fact to do all of that”* (PH1).

Another constraint has its source in the allocated time slots in the blocks themselves: “*The problem actually is that the public health lectures are usually the last lectures of the day and most of the time nobody really attends them”* (PH3).

The lack of time in the lives of busy clinicians and public health professionals is a substantial constraint but, perhaps, time would be less of a barrier if academic staff were interested in public health.

6.4.3 Clinicians’ academic interest and availability

Medical students are not alone in being uninterested in public health. A lack of interest can also be found among some clinical members of staff. “*So you know that is a weakness internally; even in our department there is the idea that very few people are interested in these preventative programmes”* (BC4). In some cases although an opportunity to learn about public health is included in the block, the inclusion appears to be dependent on whether a staff member is available: “*Ja we do [the] district health system there but it also depends a bit on how or who is available and it seems to be that as a knowledge field the students don’t see it so clearly yet”* (BC1). Staff turnover therefore



also poses a threat to the inclusion of public health, as new members of staff might replace public health topics with more clinically orientated topics: *“It’s not about disease, it’s about disease prevention really and we do that in our department very poorly because all of our people who were in public, in [speciality] the sort of preventative [speciality], have kind of left our department over the years so we don’t really have much in the way of [speciality] per se in our department”* (BC4). As a result the curriculum is vulnerable to the academic staff’s own personal interest (Frenk *et.al.*, 2010:1943).

One chair wistfully remarked: *“I would imagine that the solution to this is if we had a strong department or division of [speciality]; it would fulfil the public health role very nicely”* (BC4).

6.4.4 SHSPH academic staff’s interest and availability

The current ‘new’ medical curriculum predates the entire current SHSPH academic staff. The long-established medical curriculum combined with a small SHSPH academic staff component made any attempt to challenge the *status quo* unattractive: *“I found it like this. It has been going for quite a while...the main reason why we haven’t been making an effort to challenge that it be changed has largely been the fact that we do not have the necessary resources to be able to cope...there are certain gaps that are obvious... So I think there are a whole host of areas where we could play a part where we haven’t played a part because in fact we don’t have the necessary resources and necessary staff to be able to do it”* (PH1). As a result of this historical legacy the “traditions, priorities, and values of the faculty in that profession” have remained unexamined and unchallenged (Frenk *et.al.*, 2010:1951). The lack of a critical mass of academic staff was a barrier to the facilitation of learning about public health described by eleven medical schools in Canada (Johnson, Donovan & Parboosingh, 2008:416). But equating change with a required increase in resources is somewhat of a false association as the SHSPH received funding for an additional two public health medicine specialists under the terms of a Clinical Training Grant. In the three years to date that these extra resources have been in place no changes have been made to the undergraduate programme.

The various types of time constraints and lack of interest on the part of academic staff are exacerbated by the one constraint which is the most pernicious of all: medical students’ lack of interest in public health.

6.4.5 Medical students' interest in public health

Medical students' lack of interest in public health is well described in the literature (Maeshiro *et.al.*, 2010:214; Woodward, 1994:390; Riegelman, 1991:254) and is experienced firsthand in the lecture halls: *"One of the things I mentioned to you just now is that when students realise that there are these soft topics that aren't didactic medical topics, they don't come to the lectures, because they know we don't put them in the exam, they don't study them, they have no insight into them"* (BC4).

6.4.6 The use of golden threads

The adopted golden thread approach is linked to the time constraint: *"Perhaps the major challenge lies in the approach and not in the content. The major challenge lies in the approach...because the chances of getting a block approach are very minimal given the fact that...the medical faculty has got...the right of choice of how in fact you know the programme is to be organised and...medical training in this case, or diagnosis and treatment, comes first"* (PH1). Inherent in this sentiment is the unspoken preference for a block approach which is philosophically problematic. The philosophical problem with a block approach is the ubiquitous nature of public health, if it really is everywhere then it  has to be everywhere in the curriculum: *"It's crucial for them to understand you know what public health is. But I wouldn't limit it to just only in the classroom scenario because public health is everywhere you know"* (PH3).

The benefit of a block approach is that it has visibility in the curriculum. It could be argued that a block approach is lecturer-centred as it is the lecturer who benefits the most by being able to ensure that the content is indeed 'covered' and assessed. A thread approach will always challenge the clinicians who often dislike ambiguity (Lee & Hoyle, 2002:639). But if public health is to be integrated into the daily practice of doctors, then the learning about public health cannot be separated from the learning about medicine.

But embedding public health as a thread in the medical curriculum has a price – that of not being able to point with certainty to a mark and say that this mark is evidence that a student understands public health or can use public health tools to apply public health concepts. Here a SHSPH participant gives a small vignette of her undergraduate

experience of the thread approach at our university but with the benefit of specialist training in public health medicine in the interim: *“So, you will have, again as I said you'll have the small little blocks and they you will talk about water but nobody really attends those lectures so....and then again block 2 is there. But in block 2 you don't get a sense that this is public health you know. This is a block straight after anatomy when everybody is tired and it's research you know. It's just to find out what is going on in communities and the clinics but it doesn't tie in you know the whole concepts. Then Prof. [name] will do sensitivity and specificity at some point. Prof. [name] came in and talked about health policy and that type of thing but it's, in your mind it's almost like a standalone little lecture of this whole thing and nobody really studies it because it's only one mark or two marks so when you finish you don't know what sensitivity is or what's specificity and that type of thing because it's actually swallowed in, inside, the whole curriculum”* (PH3).



As public health is integrated into the curriculum, understanding what is happening in any of the blocks at any given time is problematic. Even from the perspective of direct involvement by our school we could not be entirely sure of who had been invited to facilitate sessions, as these invitations are issued by the chairs of the blocks directly to the SHSPH academic staff member: *“I don't know whether they still...ah this year, whether this year in fact, [name] was doing it”* (PH1) or even if the session itself is still included in the block timetable: *“Do we have a place for occupational health?”* (PH3) *“I don't think we have place for it”* (PH1).

One reason for this fragmentation is that *“each block is functioning as a separate entity and in fact they hardly ever have an opportunity where they then all sit together to say that how is our product in fact you know? How are the services, the teaching that we provide, how does it in fact interdigitate into the teaching that is provided by other blocks?”* (PH1) The forum where these reflections can take place is the annual block chairpersons' meeting, but on review of the minutes of the meetings (2005-2010) the focus has been on the communication of planned changes.

An inherent consequence of the inclusion of public health in the mainstream of medicine is not being able to be sure *“what medicine is doing here [a particular block] and what medicine is doing in other places”* (PH4) with regard to public health.

The inability to dissect public health is a feature of integration: “*One of the issues that has always been a challenge is the fact that we are expected to integrate whatever we are teaching into the general teaching that the undergraduates are getting. Partly because of the structure of the programme but partly because it is demanded of us but even with that type of arrangement we need to...be able to say what component in this integrated teaching – what component is public health and how are we assessing it?*” (PH1) This question might remain a rhetorical one.

6.4.7 Assessment of public health

The inherent challenge of a thread approach is the persistent challenge of assessing learning. As the learning about public health is predominately included within the blocks the question of whether the public health topics are assessed¹¹ in this block formed part of the in-depth interviews with the block chairs. Four themes emerged:

- Elevated public health – scratching the surface for evidence;
- Embedded public health – digging for evidence;
- Assessment and learning; and
- Assessment horizons.

6.4.7.1 Elevated public health – scratching the surface for evidence

When components of public health such as health systems, epidemiology or study design are more easily identifiable in the block content, assessment of students’ learning within these particular topics was easier to identify.

A wide range of assessment strategies were named including: “*Our assessment is paper cases and...an exam [where we are] asked questions about immunisation*” (BC7).

¹¹In order to distinguish between student assessment and student feedback, I use “student assessment” when the purpose of the activity is to make judgments of some kind of student learning. “Student feedback” is used when the learning opportunity (topic/block/SA etc.) is being judged by the students.

Mention was also made of practical assessments: “*We also use the Road to Health Card as an objective in one of the assessments to identify risk factors on the specific card...we always have growth charts in our assessments*” (BC7).

A popular method of assessment was the “*extended matching questions – so we take a little scenario and then we work around with lots of possibilities and they answer three questions where they actually have to give cognitive thought to 15 possible answers. So ja, it is included as well*” (BC2). Inclusion of public health components was ‘hidden’ within these clinical scenarios so that students “*feel that it is worth their while having studied those things, that at least they have somehow been tested for that as well*” (BC2).

Blocks that were dominated by public health content had, as expected, multiple assessment strategies including various assessment methods: “*It’s assessed in various ways – actually um they have to work on um preset case studies that by which we try to encompass the full syllabus for public health in this module so the, so that everything they ought to know or the learning objectives are captured within the case studies which they have to do. They do that in groups as well in groups of two to four as they choose. So they do that and they submit that as a complete set of assignments and that is assessed then and those case studies are then, you know they, they appear again exactly as they are in block tests and block exams*” (BC10). This particular block also has a substantial research component and the oral presentations and written reports of their findings are assessed by both the SHSPH and the local health authorities. “*Ja um I can immediately say um the work they have been doing through the years is really impressive, amazingly if you think of it within six weeks starting from getting the protocol (with a lot of other stuff happening in between) executing everything within a week and coming up with sensible results. Really great. I think as well as the strengths of our medical um training that they’ve got that first-hand experience because if you don’t understand where knowledge is generated and how it is generated and...what’s sensible of what they are doing and so I think it’s critical that they’ve got that background and that sort of first-hand contact and participating research even if it’s at that rather um simple, modest level um the results are not always that modest*” (BC10).

In another block the contribution by the SHSPH had increased over the past few years and this increased involvement is reflected in a parallel increase in the mark contribution: “*At*

this stage the public health contribution or the mark is 20% of the total mark and it used to be less in the past. I think we started off with 10% then we went up to 15% and now 20% (BC6).

6.4.7.2 Embedded public health – digging for evidence

Two particular challenges face the assessment of public health when the public health components are embedded in the block content.

The first was the difficulty of assessing students' understanding and application: *"And also the public health early detection and that sort of thing is also very difficult to get a sense of an A, B, or C answer"* (BC5). Asking essay-type questions would possibly circumvent the limitation of multiple choice questions, but here the second difficulty surfaced – that of resources: *"I can say or create a hype that yes there may be written questions from other schools; the problem is those other schools have to then set and mark those papers"* (BC4).

Some block chairs thought that they had little or no public health topics included in current assessment strategies. Amongst these block chairs there was a willingness to include public health: *"Let's say we have a question on [condition] then we have a basic uh public health component of what are the risk factors for [condition] in children"* (BC4). But a lack of confidence that the resources exist in the SHSPH to mark these questions posed a subsequent constraint: *"When I give your guys in public health 220 scripts to mark they are not going to be interested"* (BC4).

6.4.7.3 Assessment and learning

The thought was verbalised that assessment drives learning and therefore inclusion of public health topics in assessment is essential: *"They don't come to the lectures, because they know we don't put them in the exam, they don't study them, they have no insight into them. And I, uh we've got to do one of two things – we've either got to leave them out completely or we've got to test them, we've got to make sure the students know them so we test them um and I think there is some that we got to leave out completely and some we need to test"* (BC4). The University of Pretoria is not alone in this as 11 of the 17

medical schools in Canada identified “inadequate methods of student assessment” as a barrier to improving the facilitation of learning about public health (Johnson, Donovan & Parboosingh, 2008:416). Gillian and Maudsley (2009:128) suggest that the problem surrounding assessment is that “it is inescapable that students attach most significance and devote most learning time to things that ‘count’ (are formally assessed)” and go on to suggest that one way to achieve this is the use of summative assessments.

6.4.7.4 Assessment horizons

One respondent underlined the short-term horizon of the medical student: “*There’s no question that it’s a continuum, it’s just about trying to get that message across to medical students who are only focused on what they think they are going to be examined on tomorrow*” (BC4). The medical students’ short-term horizon was acknowledged in the SHSPH workshop discussions and identified as a barrier to integration of public health knowledge, practice and attitudes, as students tend to learn in compartments so that “*I’m doing in fact this particular block, I need to memorise this and pass it and then in fact I’ll go on to the next thing*” (PH1).

Assessment of the inclusion of public health components was reported as formative: “*Formative is quite okay and maybe that is the bottom line with this whole thing*” (BC2). None of the respondents suggested following Gillam and Maudsley’s advice (2009:128) of going beyond formative assessment.

6.4.8 Discussion

The constraints of including public health in the medical curriculum are closely linked to the discussion of the proposed public health competencies and the curricular intentions of the SHSPH, which both form epistemological and ontological constraints of their own.

The two modifiable constraints identified by the block chairs are ‘time’ and ‘interest’ while the permanent constraint is the inherent feature of using a thread-like inclusion strategy. The golden thread approach has uncertainty as one of its inherent features. Uncertainty whether public health topics have been included, but also uncertainty as to whether medical students have learned about public health. One strategy to reduce the uncertainty

is to resort to the assessment of learning. But assessing students' learning about public health in the medical curriculum was described by the block chairs as a constraint all of its own.

A further constraint is our individual theories and understanding of public health (Chapter 5, Section 5.4 to 5.7). This multiple concurrent understanding can be a substantial constraint to achieving clarity of our curricular intentions. The difficulty lies in restraining ourselves within either the prescribed or our personal intentions. Few can restrain their particular interests because: *"The challenge, though, is one of depth. I think at the undergraduate level we will probably in fact you know may not be able to go into depth"* (PH1).

Irrespective of the detail, public health is included in the medical curriculum and we therefore have opportunities to transform our educational practices. The question of whether we need to transform our educational practices could be answered partially by reflecting on our own practice but also by asking the medical students in our care.

6.5 Medical students' feedback and experience of public health in their curriculum

The use of student feedback of their academic experience is standard practice in universities despite the concerns about validity and reliability (Schiekirka, Reinhardt, Heim, Fabry, Tukrop & Raupach, 2012:45). The debate on the widespread use of student feedback is better conducted elsewhere. What is important in this research is that student feedback is used by the block chairs and the first part of this section explores the use of this feedback. The second part of this section deals with the results of the survey that explored medical students' overall experience of public health in their curriculum.

6.5.1 Feedback of public health in the blocks

In the undergraduate medical curriculum a system of student feedback regarding the blocks/SAs and SMOs is used. Block chairs can choose questions from a wide range of available questions, some of which are compulsory. Block chairs tend to use the same set of questions over a span of years as this allows them the opportunity to draw comparisons

over time. Block chairs also have the opportunity to add any other questions that they are interested in.

In the in-depth interviews block chairs were asked whether students evaluate the golden thread of public health in their block.

A minority of block chairs had any concrete examples of student feedback of public health in the curriculum but some mentioned informal feedback: *“The feedback, the informal feedback has been positive um I haven’t had any complaints about that I can remember...and that says a lot”* (BC10).

In one particular case the inclusion of public health in the feedback was more apparent: *“Students evaluate the golden thread of public health in this block”* (BC6). In this particular block a formal method and an informal method is used. The standard block feedback presents students with a range of questions to score on a 5-point Likert scale. The culmination of the various questionnaire items results in a global score on a 10-point scale. This questionnaire is completed online on the last day of the block. The questionnaire does not contain a specific question on any public health topic *per se*, but does offer the students the opportunity to answer a few open-ended questions and make general comments.

The second method of student feedback in this block is the three written reflections that students write (before, during and after their primary health care clinical placements). *“[Where] I get my information from is from the reflection journals that they submit”* (BC6). Here it became clear to the assessor what students thought about the inclusion of public health: *“[It is] very frequently stated that the public health system discussions were eye openers to them because nobody every taught them anything about health systems and how the medical system in this country works and how your private medical aspects and those kind of things, nowhere in their curriculum, they claim, have they been informed about any of this”* (BC6). Besides a rich source of student opinion, the written reflections have cemented the place of public health (in this case, specifically health systems) in the medical curriculum. *“So it is an absolutely essential thing and they absolutely enjoy it because they usually just go to clinics. They haven’t got an idea of what is going on in the private sector and now they can compare the two and they can analyse*

and, in a certain way, they claim it to be an eye opener in the sense that they get information which they never got anywhere else” (BC6).



Block feedback is used to improve the quality of our inputs into the curriculum: “Using the ratings to see where the kinks are is important. Block [X] works now because we also worked out the kinks” (PH4). But asking students to provide feedback on a block is not necessarily a universally valued strategy: “I regard student feedback on blocks as of limited value because students do not have the insight and the health system is so skewed towards intervention as procedural specialist type things that I am not expecting students to like what they do and I am not thrown by low scores or by their dislike” (BC1). But perhaps it is not the notion of eliciting student feedback that is not acceptable but rather the method of using the standard questions when others such as: “How did your learning impact on your thinking or your practice”? (BC1) might provide richer information and provoke student reflection.

The question of asking a question regarding public health as a standard inclusion in the student feedback was raised by a block chair: “I am thinking of a strategy, if public health is present in every block the students, by the end of block, should be able to answer the question of ‘how am I going to implement the learning from this block to improve the health outcomes of this community’, for example?” (BC1) Although it is relatively easy to include a standard question regarding public health as part of the obligatory student feedback, the question is whether it should be included: “There can be two arguments about that. The one is to say to them okay this is not [specialty], this is...public health medicine is maybe an artificial divide, especially for a grass-root specialist like I am. On the other hand to not do it and to see it as part of the whole disallows you to know what the specific impact is, how far does the bite go and I don’t know which of the two is the right answer but I am certain those are two answers, there is not only one answer” (BC2). If our educational philosophy is that public health is integrated then the separate feedback of public health becomes an anathema. Despite this, the block feedback remains compelling reading for those who wish to transform their practice.

6.5.2 Feedback of public health in the curriculum

The survey that explored medical students' experience of public health in their curriculum was conducted in 2012 (Chapter 4, Section 4.6.6).

This collaborative research was a singular opportunity to ask students what they think public health is (Chapter 5, Section 5.4) and to explore two other questions. The first question explored their opinion of the public health topics included in their curriculum to date and the second question explored the students' use of social media (Chapter 7, Section 7.3).

The survey included all year groups and was inspired by the 2010 article (Maeshiro *et al.*, 2010:214) that reported on the annual graduation questionnaire of the Association of American Medical Colleges (AAMC). The results from the AAMC survey raised a concern that graduating students were of the opinion that their medical studies were inadequate with regard to key public health topics.

Permission was obtained to use the sections of the AAMC questionnaire that included the public health questions (Chapter 4, Section 4.6.6) and the questionnaire was adapted to include the option 'not done any yet' as our target group included all year groups. The findings of the survey are summarised in Table 6-11.

Table 6-11: Medical students' (all years) opinions on the adequacy of the teaching of various public health topics (2012)

Topic	Inadequate	%	Appropriate	%	Excessive	%	Not done any yet	%	Missing	%	Total
Public health	98	16.6	365	62.0	48	8.1	58	9.8	20	3.4	589
Role of community health (and/or social service) agencies	78	13.2	375	63.7	65	11.0	48	8.1	23	3.9	589
Health promotion and disease prevention	73	12.4	361	61.3	98	16.6	33	5.6	24	4.1	589
Screening for diseases	104	17.7	336	57.0	71	12.1	52	8.8	26	4.4	589
Infectious disease prevention including immunisation	68	11.5	343	58.2	118	20.0	37	6.3	23	3.9	589
Health surveillance strategies	152	25.8	288	48.9	33	5.6	82	13.9	34	5.8	589
Clinical epidemiology	107	18.2	320	54.3	74	12.6	59	10.0	29	4.9	589
Biostatistics	169	28.7	194	32.9	32	5.4	167	28.4	27	4.6	589
Evidence-based medicine	105	17.8	298	50.6	46	7.8	113	19.2	27	4.6	589
Occupational medicine	166	28.2	223	37.9	23	3.9	146	24.8	31	5.3	589
Environmental health	147	25.0	298	50.6	38	6.5	74	12.6	32	5.4	589
Determinants of health, including social determinants and culture	131	22.2	308	52.3	82	13.9	39	6.6	29	4.9	589
Global health issues	158	26.8	299	50.8	39	6.6	67	11.4	26	4.4	589
Health policy	166	28.2	290	49.2	37	6.3	65	11.0	31	5.3	589
Health care system	123	20.9	337	57.2	53	9.0	47	8.0	29	4.9	589
Medical economics	235	39.9	141	23.9	25	4.2	159	27.0	29	4.9	589
Behavioural sciences	169	28.7	244	41.4	31	5.3	114	19.4	31	5.3	589
Drug and alcohol abuse	71	12.1	333	56.5	127	21.6	31	5.3	27	4.6	589

As the Maeshiro *et al.* (2010) article reports on the inadequacies of the learning about public health topics, the topics identified as 'inadequate' in my study will be discussed first.

The ten worst rated topics in the UP survey were:

- Medical economics (39.9%);
- Behavioural sciences (28.7%);
- Biostatistics (28.7%);
- Occupational medicine (28.2%);
- Health policy (28.2%);
- Global health issues (26.8%);
- Health surveillance strategies (25.8%);
- Environmental health (25.0%);
- Determinants of health, including social determinants and culture (22.2%); and
- Health care system (20.9%).

Two public health topics were also identified as being 'excessive' to a similar degree (at least a fifth of the responses): drug and alcohol abuse (21.6%); and infectious disease prevention (20.0%).

The association (as relative risk ratios or RRR) between each of the 18 public health topics listed in Table 6-11 (as an outcome variable) and the four explanatory variables (social media use, year of study, gender, knowledge score) was investigated in univariate multinomial regression models. An answer as 'inadequate' for an outcome variable was set as the reference level. A new variable was created for social media with two levels: low frequency of social media use ('never' using any form of social media) or high frequency of use ('daily' and 'several times a day' combined), with the low level set as the reference level. Female students, the first-year group and the lowest knowledge score were set as the reference levels for the three other explanatory variables. Only strong associations (arbitrarily defined as RRR >1 (i.e. >100% likelihood) with a p-value ≤ 0.05) are reported in Table 6-12.

Table 6-12: Likelihood of respondents to rate exposure to public health topics during degree studies as ‘adequate’ or ‘excessive’ in percentages

Question	Explanatory variable	Adequate (%)	p-value	Excessive (%)	p-value
Public health	Third-year students	238	0.050	NS	-
	Fourth-year students	236	0.031	NS	-
	Fifth-year students	NS	-	288	0.046
Health promotion and disease prevention	Fifth-year students	506	0.014	NS	-
	Social media use	415	0.006	NS	-
Screening for diseases	Third-year students	319	0.018	NS	-
	Fourth-year students	270	0.016	NS	-
	Fifth-year students	460	0.001	NS	-
	Fourth-year students	NS	-	613	0.000
	Fifth-year students	NS	-	806	0.000
	Social media use	686	0.002	NS	-
Infectious disease prevention including immunisation	Third-year students	1170	0.001	NS	-
	Fourth-year students	882	0.001	NS	-
	Fifth-year students	551	0.000	NS	-
	Third-year students	NS	-	905	0.008
	Fourth-year students	NS	-	2305	0.000
	Fifth-year students	NS	-	905	0.000
	Social media use	554	0.002	NS	-
Evidence-based medicine	Third-year students	266	0.020	NS	-
	Fourth-year students	262	0.009	NS	-

Question	Explanatory variable	Adequate (%)	p-value	Excessive (%)	p-value
Evidence-based medicine	Fifth-year students	478	0.000	NS	-
Determinants of health, including social determinants and culture	Second-year students	NS	-	611	0.007
	Fifth-year students	916	0.003	NS	-
Global health issues	Third-year students	238	0.050	NS	-
	Fourth-year students	236	0.030	NS	-
	Fifth-year students		0.046	288	0.046
Drug and alcohol abuse	Fifth-year students	460	0.051	NS	-
	Fifth-year students	NS	-	1160	0.002

*NS: Not statistically significant (p-value >0.05)

No statistically significant relationship was found between knowledge score or gender and any of the public health topics. Second-year students only had a single instance of where they were 611% more likely than first-year students to rate the determinants of health, including social determinants of health, as 'excessive' (p=0.007).

While medical economics was at the top of the list of 'inadequate' (Table 6-11), this was possibly as a result of the opinions of the first-year students as the more senior students were more likely to rate medical economics as adequate:

- Second-year students (30 % more likely; p=0.000)
- Third-year students (36% more likely; p=0.009)
- Fourth- year students (14% more likely; p=0.000)
- Fifth-year students (41% more likely; p=0.006)

A similar picture emerged with regard to rating behavioural sciences as adequate:

- Second-year students (25 % more likely; $p=0.000$)
- Third-year students (18% more likely; $p=0.000$)
- Fourth- year students (34% more likely; $p=0.003$)
- Fifth-year students (35% more likely; $p=0.003$)

The opinions of the 110 fifth-year medical students (as representatives of the most senior students in the survey) are contrasted with the published results of the AAMC questionnaire (Maeshiro *et al.*, 2010:214) in Table 6-12. Only the public health topics that were considered as 'inadequate' were published so this is the only comparison made.

Table 6-13: Average percentages of Canadian and USA medical school graduates and University of Pretoria (UP) fifth-year medical students who felt instruction was inadequate in selected public health topics (Adapted from Maeshiro *et al.*, 2010:214)

Public health topic	Canada	USA	UP
Biological, chemical and natural disaster management	n/a	47.8	n/a
Biostatistics	42.4	24.6	42.6
Clinical epidemiology	30.1	n/a	21.3
Environmental health	n/a	42.6	30.4
Global health	51.6	44.5	n/a
Health care systems	35.1	40.4	24.1
Health systems finance	n/a	49	n/a
Health policy	41	46.9	33.4
Health surveillance strategies	n/a	35.6	31.9
Medical economics	n/a	62.7	49.5
Nutrition	45.5	n/a	n/a
Occupational medicine	42.6	43.5	40.6
Public health*	33.5	33.7	18.8
Risk assessment and counselling	29.2	n/a	n/a
Role of community health and social service agencies	36.2	33	15.2

*The Canadian Graduation Questionnaire inquires about 'public health and community medicine' together.

The US Graduation Questionnaire inquires about 'public health' and 'community medicine' separately.

Overall, the proportion of ‘inadequate’ is lower and therefore more favourable among the fifth-year UP respondents. Public health topics that had similar proportions to the UP students were biostatistics (Canada); health surveillance strategies (USA); and occupational medicine (Canada and USA). The lowest rated item among the UP students – medical economics – is also the lowest rated among the American medical graduates. The role of community health and social service agencies had the lowest proportion of ‘inadequate’ among the UP fifth-year respondents.

One difficulty in the study is whether medical students would know whether instruction was adequate (or not). A pragmatic strategy is for public health educators to view the results in the light of their own satisfaction (or dissatisfaction) regarding the facilitation of learning about the same topics. A second difficulty is whether our medical students can identify these public health topics in their curriculum, as the majority of these topics are embedded in the clinical curriculum. In order to overcome this difficulty a supplementary question was asked that explored the inclusion of public health at a more abstract level. The question explored a values-based approach to explore to what extent certain values have been emphasised in their medical studies to date. The first question in Table 6-13 is from the AAMC questionnaire. The remaining four are based on the attributes of the ‘five-star’ doctor (Boelen, 1993:6-7): decision maker; communicator; community leader and manager that are aligned to public health. The fifth role of care provider was not included. Three of these questions also overlap with the CanMEDS roles of leader and manager; communicator and health advocate (Section 6.2).

Table 6-14: Respondents' level of agreement on the extent to which key values have been emphasised in their studies to date

	Strongly disagree	%	No opinion	%	Agree	%	Strongly agree	%	Missing	%	Total
A commitment to advocate for access to health care for members of traditionally underserved populations	41	7.0	135	22.9	270	45.8	123	20.9	20	3.4	589
A commitment to decision making so that limited health resources can be shared fairly to the benefit of every individual in the community	43	7.3	70	11.9	304	51.6	155	26.3	17	2.9	589
A commitment to communication that can persuade individuals, families and communities to become partners in their pursuit of health	34	5.8	59	10.0	283	48.0	198	33.6	15	2.5	589
A commitment to understanding the determinants of health inherent in the physical and social environment	30	5.1	56	9.5	311	52.8	175	29.7	17	2.9	589
A commitment to managerial skills to make better decisions, to work within a team with other partners for health and social development	49	8.3	79	13.4	263	44.7	182	30.9	16	2.7	589

The respondents agreed or strongly agreed that a commitment to managerial skills (85.6%), a commitment to understanding the determinants of health (82.5%), a commitment to communication (81.6%), a commitment to decision making for fair allocation of resources (77.9%) and a commitment to advocate for access for underserved populations (66.7%) had been emphasised in their medical curriculum to date.

Chi square analysis was done (and a Fisher's exact test where cell values were less than 5) to test for any association between the year of study and the respondents' opinions. Only one significant association was found between the year of study and the respondents' opinions. Fifth-year respondents were more likely to answer 'no opinion' than 'strongly disagree' compared to the first-year respondents ($p=0.003$) in response to 'a commitment to understanding the determinants of health inherent in the physical and social environment'. However, the confidence interval is very wide (CI: 2.102918 - 39.95771) because of the small sample size of the reference group. No significant association was found between gender and respondents' opinions on any of these values and no respondent indicated either 'strongly agree' or 'strongly disagree' across all five questions.

6.5.3 Discussion

The results of the survey provide some indications of where the facilitation of learning about public health topics falls short in the opinions of the medical students and where it could benefit from attention. The highest rating of 'adequate' for health promotion and disease prevention (61.3%) is in line with the reported increased emphasis on clinical prevention in the USA (Garr, Lackland & Wilson, 2000:S14).

Riegelman and Garr's (2008:322) contention that topics with less immediacy such as health systems and health policy receive little attention appears valid in our curriculum. Both health policy (28.2%) and health care systems (20.9%) were listed in the top ten worst performing topics amongst the UP respondents. It is also noteworthy that the two topics that had a low profile in the block books (health economics and occupational health) were among the top five topics rated as 'inadequate' in the UP study.

The univariate multinomial regression models (Table 6-12) suggest that the time spent in the medical curriculum does result in more opinions of ‘adequacy’ regarding the learning experience. This finding is expected in a public health curriculum that is integrated via a golden thread approach. The students’ opinions of topics that they consider ‘excessive’ could be a reflection of the emphasis in the curriculum on: screening; infectious diseases prevention including immunisation; and determinants of health. The opinion of the fifth-year students that the topic of ‘global health’ is excessive in the curriculum cannot be explained. However, the opinions of the fifth-year students regarding the excessive focus on ‘drug and alcohol abuse’ is quite possibly due to their concurrent participation in SMO511/512 that focuses on drug abuse. The finding that fifth-year medical students are 288% more likely to regard their educational experience of ‘public health’ in their curriculum as ‘excessive’ is clouded by the multiple concurrent understanding of public health.

Poor education experiences with regard to public health are clearly not uncommon (Maeshiro *et al.*, 2010:214) but a study in Canada revealed an additional educational challenge (Tyler *et al.*, 2009:1309). Students at five different medical schools in Canada reported: poor educational experiences in public health; negative attitudes towards public health topics; lack of positive exposure to community medicine specialists; and an emphasis on statistics and epidemiology (Tyler *et al.*, 2009:1309) despite variations in the curricula. Poor experiences of public health seem to be pervasive across the different curricula and also appear to cross the Atlantic. The comparison of the Canadian and American graduates with the fifth-year UP students shows similar opinions over most of the public health topics. The item that had the least similarity in ratings between the Canadian or American respondents and the UP respondents was ‘role of community health and social service agencies’. This substantially more favourable opinion among the fifth-year UP respondents is possibly attributable to the inclusion of the Longitudinal Clinical Attachment Programme for Students (LCAS) that places students in community structures for the duration of their studies, as well as the national emphasis on primary health care in the South African medical curriculum (Seggie, 2010:8).

The results of the exploration into the degree to which certain key values had been emphasised in the curriculum were positive. This finding suggests that the academic and clinical staff highlight the key values that Boelen included in his five-star doctor model

(Boelen, 1993:6). The notion of public health contributing to the ontological and epistemological development of the medical students is strengthened by this finding. The addition of 'a commitment to advocate for access to health care for members of traditionally underserved populations' had the weakest agreement. A possible interpretation is that our medical students already practise in underserved populations and that access to health care services, especially primary health care services, has improved markedly since 1994. This 'commitment to access for underserved populations' is not included in the proposed public health competency framework for possibly the same reasons. In contrast, all the values from the Boelen five-star doctor model are included in the proposed public health competency framework.

6.6 Conclusion

The progress made by the national working groups on the proposed public health competency framework has eclipsed this research and has simultaneously injected tension in the public health educational landscape. The framework has provisionally set the first boundary – what graduates should be able to know and do with regard to public health. As a result the SHSPH has to reframe its own aspirations for the public health contribution to the ontological and epistemological development of our medical students. In addition the SHSPH's ontological approach is at odds with the behaviourist paradigm that is implied in a competency framework (Albanese *et al.*, 2008:254). The tension between the competencies' 'know/do' approach and the SHSPH's 'be' approach is likely to remain as a permanent feature of our educational practice.

One significant advantage of the process of developing the draft version of the proposed public health competency framework is that for the first time the majority of South African universities have critically considered the inclusion of public health in the medical curriculum. Part of this identification process has necessitated exploring our own understanding of what is meaningful, important and relevant in our own curricular intentions.

The review of the block books has revealed a compound and complex view of the topography of public health in our medical curriculum. The review hints at the depth and breadth of the inclusion and has revealed unknown inclusions in the first six months of

study. Any conclusions derived from this review must be tentative, as the purpose of the block books does not correspond to the purpose of this research. However, when viewed in conjunction with the results from the student survey, topics such as health economics and occupational health could benefit from closer examination. The absence of any form of description of public health topics in the block on 'Lung and chest' is worth revisiting.

The curricular constraints described by both the block chairs and the SHSPH workshop participants echoed those typically described in the literature – time; interest; availability and assessment – with the addition of the golden thread approach as a constraint. These constraints form a second barrier or boundary that will need to be kept in mind by any who wish to effect transformation.

The standard end-of-block student feedback questionnaire does not include any specific questions relating to satisfaction with the public health topics or inclusions. Some chair persons report using either informal means such as the lack of complaint or proxy sources such as written reflections or responses to open-ended questions. The lack of inclusion of a question on public health is perhaps because no-one has thought about it before or that there is reluctance to explore this one golden thread and not the other eight. A third alternative is that academic staff have no faith in the results of the student feedback in the first place.

The survey that explored overall satisfaction with the public health educational experience carried out among the medical students from all the year groups confirms some areas of weakness in our own curriculum. The respondents highlighted specific topics of concern that warrant closer scrutiny. The findings also endorse the impression that public health topics are universally poorly rated. The more favourable ratings by the fifth-year UP students challenge the view of universally poor ratings and suggest that an intervention such as early and sustained exposure in community settings (LCAS) has benefits for public health education.

The view of the respondents regarding their educational experience of public health topics  in the curriculum must be viewed against the overall outline of the commitment to the key values of public health that were visible to them. This emphasis corresponds to the curricular intentions and aspirations of the SHSPH.

The inclusion of public health in the medical curriculum requires more than an understanding of our current practice and our current reality. If we wish to transform our educational practice we will need to have strategies in place to bring about the transformation that will align our educational practice with our values. Chapter 7: Strategies and Exploration navigates the realm of the possible.

7 Chapter 7: Strategies and Exploration

7.1 Introduction

Chapter 5 laid the groundwork of the results chapters by reminding us of the fault line that separates public health and medicine. Chapter 5 also described the multiple concurrent understandings of public health that suffuses our thinking about it. Chapter 6 built on this foundation by exploring our intentions of including public health in the medical curriculum. The SHSPH's aspirations of the inclusion of public health in the medical curriculum were described prior to our examining our opinions on the constraints that we face with this inclusion. Finally the medical students' experience of public health in their curriculum was reviewed, as a reflection of whether change in our facilitation of learning about public health is required.

In this chapter the current, imagined, and innovative strategies for the facilitation of learning about public health are charted. These strategies aim to repair the past history of the split between public health and medicine, to ensure the present achievements and to imagine a different future.

The chapter is structured around the interviews of the international experts, the block chairs, the national expert and the School of Health Systems and Public Health (SHSPH) workshop participants. Finally I introduce the findings of two years of my own innovative educational practice of facilitating the learning about public health within this curriculum.

7.2 Strategies

Two clusters of strategies are discussed. The first cluster is the combination of strategies that aim to repair the fundamental rift between public health and medicine. This cluster is based on the interviews with the international experts who recognised this divide. The second cluster is a compilation of the actual and proposed facilitation of learning strategies that offer the opportunity to include public health in the medical curriculum. This second cluster of strategies draws from the interviews with the block chairs, the interview with the national expert, as well as the second SHSPH workshop.

7.2.1 Strategies to repair the rift between public health and medicine

The international experts proposed the construct of social accountability as a key strategy to diminish the divide between public health and medicine: “*Social accountability as an absolute requirement in the future...public health bubbling up – not as a separate entity, this would be really unfortunate in terms of preserving that difference, but somehow being able to, to articulate the convergence I guess I see it almost like...in a sense it’s like a marriage of people or almost I guess it’s almost like a reconciliation*” (IE2).

To achieve social accountability “*means merging public health and medical education together in a very integrated fashion*” (IE1). Social accountability of medical schools is an “*obligation to direct their education, research and service activities towards addressing the priority health concerns of the community, region, or nation they have a mandate to serve*” (Boelen & Woollard, 2009:888).

A goal of social accountability is to “*see medical schools not just living on their own campus and own academic institution but see how they can have an influence on our outside world*” (IE1). One way towards achieving this is “*putting [it] as, as a headline towards social accountability in our medical education*” (IE1).

In order to promote public health by being socially accountable: “*You have to be prepared to um believe that this is a subversive activity. That your purpose is to subvert the existing curriculum, which means a certain amount of discretion, a certain amount of interesting reading, a certain amount of seeking forgiveness rather than permission and a certain thick skin*” (IE2). This subversion is needed by those who can see the bigger picture of promoting social good “*because sometimes, [or] not very often, we are not prophets in our own homes*” (IE1).

Public health is important because the fundamental role of doctors is currently under question: “*A doctor’s main responsibility in the past was patient care but we are questioning whether a doctor should not have a much broader responsibility vis-a-vis a family in a community and eventually a whole society as well*” (IE1). This re-envisioned role of the medical practitioner is a confirmation of Flexner’s views that a “*physician’s function is fast becoming social and preventative, rather than individual and curative*”

(Flexner, as cited in Maeshiro *et al.*, 2010:211). What Flexner could not have imagined in 1910 was that a hundred years later this role of the medical practitioner would still be an unfulfilled prophecy.

Ultimately medical schools have the responsibility of becoming socially accountable so that they “*can participate in shaping the future health policy of the country on the highest level and through the graduates and also through the research and service model. They can have an impact on people’s well-being*” (IE1) as opposed to only curing the ill. One block chair also obliquely acknowledged this division between an individual and population focus in his suggested strategy of a formal agreement between his academic department and the SHSPH: “*So I think as a strategy, if we talk about a strategy, we should make a complete pact between public health and [department] and the other disciplines and professions that are active [in public health]’* (BC1).

One way to reduce the distance between medicine and public health could be the organisational agreement or pact suggested by the block chair. Another is avoiding the temptation to separate public health in a stand-alone module or block. Separating public health was considered as highly problematic to reducing the divide between public health and medicine: “*Having a course in public health in medical school to me doesn’t make much sense...in this sense – I mean it’s necessary now but I guess what the future is that it would be a matter of course that a medical student would see in the period of their 6 or 4 years in medical school that at various times in their careers they would be emphasising clinical medicine, family influences on medicine, neighbourhood community influences on*
 *medicine, global influences on medicine, you know, sort of person health, population health, but they would always have a responsibility for thinking about that full spectrum even when they are seeing individual patients and this is the strength [of integration]’* (IE2).

Besides perpetuating the divide between public health and medicine another disadvantage of a separate public health module within medicine is that “*the kind of courses that deal with population health, social medicine and so on tend to be seen by the students as the expendable part of the curriculum*” (IE1). Medical students will continue to view public health as expendable if they cannot see the relevance of public health to the practice of medicine (Tyler *et al.*, 2009:1308).

The notion surfaced that public health forms part of an indivisible spectrum of medicine and the opportunity exists to “*animate in students that they have to live on this whole spectrum and that in fact what they learn here [public health] makes them much more powerful here [medicine] and in fact what they learn here [public health] makes their job easier here [medicine]*” (IE2). This intertwining of public health and medicine should be so natural that doctors are able to “*recognise the signs of a sick village probably as even more important or at least recognise there is something wrong here and I need to get the public health people involved. I need to consult with them and that should be as natural as saying: ‘Whoa! This kid’s got a really sore belly and I think I better get a surgeon to have a look at him’*” (IE2).

The international experts stressed the importance of acknowledging and addressing the fundamental rift between public health and medicine. This rift was not of our own making as the origins of the split are firmly rooted in the Welch-Rose report of 1915. Most public health professionals and clinicians are not aware of this rift between public health and medicine, but our language choices still reverberate with the split so that we now need battle-like ‘strategies’ to include public health in the medical curriculum. And the first group to ask how to achieve this was the clinicians.

7.2.2 Strategies identified by the School of Medicine

Block chairs were invited to share their own practice in including public health in their blocks with the question: ‘*The University of Pretoria has included public health as a golden thread in the medical curriculum, so how would you describe the inclusion in this particular block?*’ Besides sharing their current practice the block chairs were encouraged to provide examples or suggestions for innovative practice or strategies with regard to the teaching of public health. These responses were pooled and form the source of three themes:

- Major and formal strategies;
- Minor and formal strategies; and
- Minor and informal strategies.

7.2.2.1 Major and formal strategies

The blocks that have substantive input by the academic staff members of the SHSPH were cited as the simplest strategy to include public health in the medical curriculum: “*I think it wasn’t difficult because public health is so part and parcel of...this block*” (BC6). But it is not only the level of SHSPH involvement that determines the feasibility of including public health in the blocks. Some blocks focus on the social determinants of health: “*What we decided in our big, big picture is that people must go out...into the field and that is why we created the series of ‘People in the Social Environment’ and there are three of them*” (BC2). These blocks are in the first and second year of study (Chapter 6, Section 6.3.2).

The four major and formal strategies described by the block chairs were:

- Prescribing public health as a competency;
- Using experiential learning;
- Facilitating learning by clinicians; and
- Facilitating learning by public health professionals.

- *Prescribing public health as a competency*

One strategy suggested would be to have a “*model...[so] that the community needs will require competencies to be described in [a] curriculum format*” (BC2). This comment made in 2010, foreshadowed the national workshops in 2012 and 2013 that developed the proposed public health competency framework (Chapter 6, Section 6.2).

- *Using experiential learning*

 Block chairs emphasised experiential learning in community settings and institutions as a way to include public health: “*They [the students] have to think about everything and then it becomes quite important to know also the context and the background and where it [the condition] comes from*” (BC 2). Experiential learning is an accepted educational strategy to facilitate learning about public health (Chapter 2, Section 2.4.3.3).

The three main approaches for ensuring experiential learning in public health were:

- Site visits;
- Community-based research; and
- Longitudinal Clinic Attachment Programme for Students (LCAS).

The first approach was the traditional site visits to community-based organisations that provide specialist services such as care for the handicapped. The primary purpose was cited as exposure: *“They do visit the special schools and other special facilities and the special needs clinics, so they do get exposed to that”* (BC7). The contribution of these visits is that experiences of other health care settings enable students to understand public health in practice (Gillam & Maudsley, 2009:129).

The second approach was student-led research done within the community and within community services and structures. *“It’s an experiential learning opportunity in that one of the things which makes it great is that people really experience research first-hand instead of just reading about...they have to participate in it and it’s not just participating in some kind of a recipe that they are given, they have to be creative in putting the recipe together so to speak. Um so I think that participatory process is key”* (BC10). This second strategy is already well entrenched in the curriculum: *“There’s been a community project ever since I think early, early well for the last 10 years...There have been a number of shifts in the way in which we approach it”* (BC10). In this block the use of case studies and the small scale research that is done by the students promotes the students’ understanding of the context in which their patients find themselves: *“I think it helps quite a bit to be context-based, the examples are practical and they are challenges of, within the case studies there are the challenges coming from the school of public health. Um and there are the real issues, the issues that make um universal relevant issues and so on”* (BC10).

The third approach was the flagship innovation of the Longitudinal Clinic Attachment Programme for Students (LCAS) that was developed by the Department of Family Medicine. The LCAS is an evolution of the community-based education approach that was a joint educational strategy between the Department of Family Medicine and the SHSPH. This collaboration is an example of the use of collaborative projects (Chapter 2, Section 2.4.3.1) to promote the inclusion of public health that is described by Maeshiro *et*

al. (2010:214); Beitsch *et al.* (2005:150); and Edelman and Guttman (2001:3). Unfortunately the SHSPH does not have any role in LCAS.

This inclusion of longitudinal placements in community-based structures represents a move from *ad hoc* opportunistic exposure to learning in the community to a formalised inclusion throughout the first four years of study: “*LCAS...is the students going to health posts and community-oriented health care sites where they go with community health workers to homes, which negates the notion that health is an institution-based thing you know because even going to the clinic is just another institution*” (BC1).

The rationale for LCAS is to let “*the student experience the complexity of health as experienced by households because the average medical student has an experience of health and illness which is quite nicely fitting into the specialism approach to health and to life. You know that if you are in a fairly privileged position there are resources for a dentist and for a surgeon and for a school and for all of these specialisms in life whereas if you are poor you can, at most, afford a church that offers you religion and health and prosperity and all of those things as a holistic package*” (BC1).

LCAS itself has developed and changed from a primary health care clinic-based to a health post¹² model: “*LCAS now focuses a lot on COPC, Community Oriented Primary Care, which takes the focus away from the individual and places it more on the community group*” (BC3).

LCAS was used by the various blocks for a spectrum of learning:

- from observing: “*[Where] the students will have exposure to experiential learning will be in the LCAS where they go to clinics and observe immunisations*” (BC7).
- to experiencing: “*A lot of the learning is actually by pure engagement and not by doing tasks. So the ideal for me is to say to the student ‘there are no explicit tasks or outcomes’*” (BC1).

¹² A health post is a community-based service unit that serves the population in a defined area.

This engagement with the health system beyond hospitals and clinics is aligned with the third period of reform in medical education that Frenk *et al.* (2010:1930) refer to as “health-education systems that extend beyond institutions of higher education”: “*The clinical care in districts is so much more obviously linked with health systems and society issues, it is just so much more obvious than somebody in the tertiary hospital with pure white walls and air conditioners and TV screens*” (BC1).

Block chairs saw the benefit of using LCAS for public health and suggested making better use of this existing community-based initiative: “*I think we should link it better to LCAS because I think LCAS...will benefit from a strong public health link and it will help the students maybe to better understand what their role could be in these households better because I think one of the big problems is that they don’t know how they could be of benefit, they don’t know how they can contribute to the health of these people*” (BC3). One difficulty in using the LCAS approach is the difficulty in predicting what students will see or experience in the community (in stark contrast to the controlled clinical environment of a hospital). But difficulty in controlling the learning environment does not imply that students are not constructing meaning of their experience(s): “*It will be interesting to really understand from students, those that benefited from it [LCAS] most, my impression is that it is those ones who go there and engage, regardless of what is in the guide but actually what is in the context*” (BC1).

Some of the learning about the community did not take place in the community but was an emphasis on understanding the patients’ context: “*Um and we’re trying to create sort of a background knowledge to the disease entities we’re telling students to manage so we have a lot of these sort of background community type topics*” (BC4). The rationale for the emphasis on context was that “*a person is a person because the person has context. It’s almost an Ubuntu¹³ thing*” (BC2).

¹³ Ubuntu (or botho) is the Southern African notion of humanness and interdependency: an individual is defined in terms of his or her relationship with others – or stated differently – a person is not a person without others.

Examples of clinical care provided in community or rural settings was described as being part of the experiential learning about public health: “*The district block for the senior students, it is a seven week rotation where they have to deliver 10 babies and do community obstetrics with gynaecology, community paediatrics and family medicine which is the other name for community internal medicine – they have to be exposed to that for seven weeks. Now seven weeks is a reasonable portion of a curriculum and in fact it is one-ninth so it is not so bad*” (BC2).

- *Facilitating learning by clinicians*

The strategy to use clinicians to teach public health, especially in an embedded thread-like strategy requires some thought on how best this can be achieved. From the start the intention of using clinicians to incorporate public health was clear. “*We [the School of Medicine] made a capita selecta and then we submitted it and said this is what we [the clinicians] do, we are happy to do this and this and this because we are also interested in...so with those meetings that we had we started to forge a sort of a cluster of topics*” (BC2).

Preparing clinicians to include public health in their learning opportunities was described in two ways. The first is the sensitisation of registrars¹⁴ during this period of specialisation. This is strengthened by the inclusion of a “*‘volksgesondheid tipe van’¹⁵ question in every exam, whether it is how you establish a clinic service or how do you do this or explain how you can prevent [condition] in the population and stuff like that*” (BC2). The benefit of this approach is that when the registrars graduate and are employed as consultants they are primed to “*see a little bit further than their nose*” (BC2). But of course only the clinical specialties that employ this strategy would benefit from it.

¹⁴ Registrars are qualified medical practitioners who are specialising in a field of medicine.

¹⁵ “Volksgesondheid tipe van” is Afrikaans for a “community health type of”.

The second method of preparing clinicians was the role that the SHSPH has to play in identifying and communicating key public health topics and possible learning opportunities with the block chairs. But in order to do this *“there must be somebody on [the side of SHSPH], there must be somebody who is interested to sensitise the guys who have not seen it”* (BC2).

In some cases preparation and sensitisation of key public health topics is not needed, as some clinical staff are interested in public health: *“I’ve done a lot of surveys of control of diseases like [conditions] um public you know um big community-based surveys of those diseases and the control of those conditions. So I’m very interested in those aspects of [speciality]...the idea behind patient education and patient control and there is no question in my mind that there’s just one big continuum from what you consider public health to what we consider treatment of clinical disease”* (BC4).

- *Facilitating learning by public health professionals*

Some chairs were firm that clinicians should not facilitate any learning about public health: *“I think experts, public health experts teach public health. There’s no point in clinicians trying to teach it so what we should probably do is look for [specialty] topics in public health and get your lecturers to come and teach that”* (BC4).

7.2.2.2 Minor and formal strategies

Block chairs also used (or suggested using) a number of minor but formal strategies of including public health in their blocks:

- Including public health in case reports;
- Using online fora;
- Protecting important (even if not common) material;
- Hitting the right note; and
- Carving out time in the curriculum.

- *Including public health in case reports*

Case reports have the potential to include public health topics by including a requirement that leads students to reflect on the public health implications of the case: *“So it’s a bit of free thinking that we try...practice writing a case report because this I think is one of their first exposures to practical or clinical meds and although it’s a very short sort of space, this is what we try and do and some of the students have come back with, with, you know, quite interesting sort of things”* (BC5). The added advantage of using case reports is that besides the initial involvement of a public health professional in the design phase there is no additional workload.

- *Using online fora*

“We are trying to use ClickUP¹⁶ quite a lot...a lot of it is marked on ClickUP...each day we have a discussion forum, which last year’s group didn’t use particularly well but this year’s group seem to have a few more people. The idea is that each night, there’s a time where they can answer questions, ask questions to their individual lecturers and we try and answer them if, you know, there is specific questions or there is a particular problem and I suppose that would be a platform in the future to try and expand. We can always debate, so it’s a way for people to get feedback and we can now look at giving quick feedback in individual cases as we mark” (BC5). With greater use of the electronic classroom the need to be in the office or in the lecture hall to interact with students disappears. The large number of medical students combined with the small number of SHSPH academic  staff can be regarded as a constraint for the use of online fora for the facilitation of learning about public health. Conversely, the use of online fora can be considered a way for the small number of SHSPH academic staff to reach the large numbers of medical students.

¹⁶ ClickUP is the electronic platform or classroom used by the University of Pretoria.

- *Protecting important curricular content*

In one case a block chair reflected on protecting important curricular content even if the conditions themselves are rare. This is counter to the general tendency in our medical curriculum of focusing on the most common conditions in society which is a public health approach. *“It’s difficult because [condition] from a [specialty] perspective is quite rare. In adults it’s, it’s more, more common and that’s why I have kind of fought to keep the special assignment going. It is because it is a common problem malignancy some people report up to one in three people have a sort of a life time risk of getting some form of malignancy so I think if the students know a bit about it but whether we can tally it to...the disease burden is, is very difficult so from a [speciality] point of view it is not a big burden whereas in adults it is more of a burden”* (BC5). Despite being rare, the treatment of these conditions has two public health implications. The first is the cost of the loss of life and second is the high cost of treatment when the condition progresses. The first is a social issue and the second is a health economics issue.

- *Hitting the right note*

One pragmatic strategy was including just the right amount of public health: *“What they get in those three hours is enough for them to understand or to get an idea of what is going on...I think what we give them in the three hours seems to be sufficient, at this stage, for the undergrad student to start thinking about all the [public health topic] systems and how it works”* (BC6).

- *Carving out time in the curriculum*

One strategy to ensure the inclusion of public health was to *“create one whole afternoon in our current block, at least one afternoon where we call it the public health perspective on [speciality]”* (BC4). But in order to ensure attendance the strategy could be refined to *“squeeze it in between two nice clinical lectures and we don’t, we give it a title that doesn’t imply that it’s just a public health lecture we’ll give it a nice clinical title and then the students will be there”* (BC4). This strategy emphasises two persistent views. The first is that clinicians would be more comfortable with having clear boundaries between public

health and medicine (Chapter 5, Section 5.5.1) and the second is that medical students do not see the relevance of public health (Tyler *et al.*, 2009:1308).

7.2.2.3 *Minor and informal strategies*

Block chairs shared a number of *ad hoc* personal strategies that they use to include public health in the medical curriculum:

- Aligning the curriculum with the local disease burden;
- Sharing personal anecdotes from practice;
- Asking the right questions;
- Using public health professionals as guest lecturers; and
- Making public health exciting.

- *Aligning the curriculum with the local disease burden*

Aligning the curriculum with the local disease burden is a key formal strategy of the university. One block chair used an additional informal strategy to confirm the common conditions that need to be included in the curriculum: “*So what I did is I sent letters to 38 General Practitioners, I was a GP for 15 years myself so I could do it myself, but I sent out letters to GPs in cities, bigger towns and very rural areas and asked them to give me a list of the disease profile that they see*” (BC8). The feedback assisted the block chair in identifying those conditions that the graduates are likely to see after graduation. This strategy can be viewed as the expression of a personal sense of social accountability that the block chair used to confirm that the curriculum is aligned to meet the priority health conditions of the population that the university serves.

- *Sharing personal anecdotes from practice*

“*What I often use is examples. I was a GP for 15 years before I came to specialise, so I have got a bit of a background and I think I bring it through to the guys quite often, the social problems that this patient or this topic that we are discussing now, the effects that it will have on the family and where they stay and what their occupations are, and all of those family issues*” (BC8). This block chair also asked students to either reflect back on

what they have seen in their LCAS experience or to imagine a different social reality so that they can imagine “*what is going on in people’s houses and like the HIVs, we diagnose, I sometimes think we diagnose more HIV than the gynaecologists*” (BC8). Using personal anecdotes makes public health relevant to clinical practice. And relevance to medical practice is key to engaging the interest of medical students (Tyler *et al.*, 2009:1308).

- *Asking the right questions*

Prompting students to ask the right questions – in this case the occupational history and health behaviour of a patient – offers the opportunity to show students the relevance of public health in medicine: “*Again, going back to what I have said now, a patient with a blocked nose – internal medicine is involved, public health is involved because does he work in a factory, does he smoke, where does he stay?*” (BC8) Gillam and Maudsley (2009:129) with their Liverpool Seven Pointers suggest the formal use of questions (Box 7-1) to reinforce coherence over the broad range of public health topics and the overlap with medicine.

Box 7-1: Liverpool Seven Pointers toward a population perspective on health

- 1) What public health issues are raised by this problem?
- 2) How does this problem affect the population (who, when, where, by how much and why)?
- 3) What are the health needs of the population in relation to this problem?
- 4) How can the burden of this problem be reduced?
- 5) How should health (and other) services be organised and delivered to address this problem?
- 6) What are the main research and development issues raised by the problem?
- 7) What are the main public health policy implications of this problem?

The Liverpool Seven Pointers could provide clinicians and public health professionals with a useful framework in their educational practice. This framework of questions could assist students in seeing the ‘big picture’ of public health if used systematically over the years of study.

- *Using public health professionals as guest lecturers*

The strategy of using public health professionals as guest lecturers has a drawback in that if students know that the lecture is a public health lecture they are inclined to skip the session. *“I mean we just have to make sure that the students attend that lecture. It’s always very embarrassing for me...so I can put people in and then they phone me and they say after the lecture six people pitched up for the lecture”* (BC4). The observation that medical students skip public-health-related sessions echoes the opinion of the international experts that public health is viewed as expendable. Tyler *et al.* (2009:1308) confirm that the phenomenon of medical students skipping public health lectures is commonplace.

- *Making public health exciting*

Engaging the students by making public health exciting was an attractive suggested strategy: *“Well you know whatever mechanism we, we use we’ve got to make it exciting for students ... it’s got to be something that they want to get involved with”* (BC4). Public health was not considered boring *per se*, rather the didactic approach used by lecturers  was the problem: *“All of our lectures are either didactic and boring or exciting depending on the lecturer. The topic itself doesn’t mean it has to be exciting or boring...there’s lots of nice ways to present that sort of information...with good lecturers and lots of pictures...I’m sure that we’ll do it, we’ll get it right”* (BC4). Faculty development is a valid strategy (Chapter 2, Section 2.4.3.2) to ensure the professional competence of academic staff and might be an important step in achieving student interest in public health where there is no natural interest.

The fundamental understanding of what public health is and the ability to find the articulation within the block chairs’ specific speciality was important in all the current and envisaged strategies. The first – the understanding of public health – poses perhaps the most important challenge and suggests an innovative strategy to engage with the clinical staff. This strategy of engaging with the clinical staff from the School of Medicine would also address the question of what it is that the SHSPH does: *“We need for all the departments to know what one another is doing. And especially like your department*

because you got some really prominent scientists there. And I don't think many people really know exactly what their research interests are, what they are actually publishing" (BC4). A strategy of engagement with the clinicians could also stimulate thinking about how to find the public health topics or implications in their specialty.

7.2.2.4 Discussion

One strategy that was suggested by an international expert but was not prominent in the discussions with the block chairs was that of interdisciplinary or interprofessional learning. The international expert cited an example from his experience of where interdisciplinary teams *"are given the same theoretical case and they are given an hour to figure out what their treatment plan is and then they present the treatment plan and they are judged by senior faculty members from various disciplines, who judge the quality of their agreed approach"* (IE2). One block chair mentioned the use of interdisciplinary or interprofessional curricula but currently at the University of Pretoria *"we hope that the intern year helps a bit...two intern, two years to make that a bit better but we stand guilty as accused that we haven't formed joint programmes"* (BC2). The notion of developing a common curriculum for health professionals has been proposed as a strategy for the facilitation of learning about public health (Allan *et al.*, 2004:472).

Among all the strategies mentioned, the one that has the most potential for collaboration over more than one year of study and that is also community-based is the LCAS programme. The community-based nature of LCAS ensures that the students have an *"authentic experience of the difficulties of health care that the larger part of society has and how their health experience is extremely difficult in a specialism-designed health service"* (BC1). But authentic experiences are unpredictable. One way to overcome this is to avoid describing specific learning outcomes. *"We have study guides [block books], we have outcomes but that sits uncomfortably in the approach. Because students are busy with blocks and most specifically in the fourth year they are busy with clinical blocks, now they do neurology and they get to the community or the clinic and we say alright do a neurology assignment while you are at the clinic. In that way we again force 'specialisms' on a context so they go there on a day when there are mostly children at the clinic and then they say 'but there are no neurology patients', although a certain proportion of any clinic has got headaches, that doesn't go through as neurology because serious neurology*

must have neurological signs and things like that and the people in the block, the specialist in the block hasn't got the view or the knowledge or the understanding to accommodate that into that" (BC1). The review of the block books showed a lack of available block books for the LCAS programme (Chapter 6, Section 6.3.2).

This lack of formal block books that contain the intended LCAS learning outcomes per year group creates a problem for identifying public health learning opportunities.



No conclusions can be drawn except to acknowledge that the LCAS programme is a lost opportunity to include public health. The settings in which LCAS takes place are ideal for learning about public health but we cannot accompany medical students into households and the community. And without a block book we also cannot include learning outcomes or learning opportunities for medical students to explore independently.



A second lost opportunity for the SHSPH is the potential advisory role that the school could play in identifying and communicating key public health topics with the block chairs.

The minor and informal strategies of including public health – although individual and idiosyncratic – are significant examples of personal educational practice. These clinicians are role modelling a public health approach to their clinical practice although role modelling was never suggested as a strategy by the clinicians. This omission is another lost opportunity when the views of one of the international experts is revisited: *"I guess the*



ideal thing...and we know what really shapes students is the hidden curriculum and central to the hidden curriculum is role models and since you've got an area that doesn't have any role models, how do you do that? So to me one of the obvious things is you go to the student and you demonstrate a relationship of the teachers and the clinical practitioner and the population health expert and you are literally physically bonded at the hip" (IE2).

But in a busy and full clinical curriculum only certain things are possible and as one chair remarked: *"So, I have to do what I have to do. I can only do what I can do"* (BC2). And what can't be done by the clinicians from the School of Medicine will have to form part of the strategies of the SHSPH.

7.2.3 Strategies identified by the School of Health Systems and Public Health

The discussions on what our intentions are in this curriculum (Chapter 6, Sections 6.2 and 6.3) were critical as the basis for our discussions on the strategies on how to achieve these curricular intentions. We did not seek consensus on either our curricular intentions or our optimal strategies for facilitating learning but explored multiple perspectives. A key insight was that although it is difficult to clearly delineate the borders of what should be included, there were some choices that would have to be made: *“I mean you can either set out time that we give them an overall understanding on, of public health or just focus on the key elements of the public health that would make them better physicians”* (PH2). If the primary purpose of our inclusion is to enable our graduates to be better medical practitioners then we need *“to decide per block or per golden thread what is it that public health is contributing to that particular block”* (PH3) and to make that concept applicable so that when *“looking at occupational health [it is for] you as a medical practitioner or doctor”* (PH3) for example.

With all the constraints to include public health (Chapter 6, Section 6.4) a pragmatic approach is indicated: *“The ideal really can be...must really be, tempered with is in fact what is expected and what is realistic. What is the value add that we should be aiming at?”* (PH1)  In particular it was essential not to focus on the shortcomings of the current inclusion but rather *“what we should be looking at is: what are the elements that are key and important? Even though they are not immediately provided, in fact, currently in the curriculum”* (PH1).

The second SHSPH workshop focused on answering three questions regarding our optimal strategies of facilitating learning:

- *‘How can we adapt our teaching strategies to avoid contributing to the theoretical burden, burnout and haphazard teaching?’*
- *‘What tools can we develop/use to reduce the fragmentation of the golden thread of public health?’ [This includes the student’s experience of scattered lectures that appear haphazard]*
- *‘Is there an ideal overarching teaching strategy for teaching public health in the medical curriculum? [Probe for how participants think learning takes place and what teaching philosophies they have]’*

The responses from this line of questioning were pooled and two themes emerged: strategies to facilitate learning and strategies of engagement.

7.2.3.1 *Strategies to facilitate learning*

This theme of the strategies to facilitating learning about public health in the curriculum is a combination of six categories:

- Using experiential learning;
- Facilitating learning by clinicians;
- Developing a spiral of learning;
- Threading a theme;
- Reflecting; and
- Recognising achievement.

- *Using experiential learning*



Since the introduction of the nine golden threads the Longitudinal Clinical Attachment programme for Students (LCAS) has been developed and can be considered as the unofficial tenth golden thread. LCAS represents our lost collaboration with the Department of Family Medicine but if we wish to renew any collaboration “we need to understand, myself included, what exactly are they doing in LCAS?...as it gives us another platform to engage in” (PH4).

The opportunity to include public health by incorporating learning opportunities in LCAS is very attractive as many learning opportunities in public health are community-based and experiential. However the LCAS project is not free of problems of its own: “*The idea [LCAS] is a brilliant one but I don’t know in fact to what extent the idea has been realised and that’s, that’s an issue we could have. If LCAS was working and working well...if the reports that were made last year is anything to go by it looks like there are some challenges in fact and actual implementation, actual supervision, actual guidance for students [inaudible] but it may be that those issues are being addressed*” (PH1).

Despite possible problems with implementation and problems that the lack of block books poses, LCAS still holds promise for two reasons: the first is the opportunity to develop

advocacy skills in an authentic context. *“Because they are in the same clinic for I think six years now because they stay there for the whole time and then at some point they would then have that skill whereby they will have an advocacy campaign as part of their output”* (PH3).

The second opportunity for medical students is for them to become change agents: *“So, that’s [LCAS] another opportunity, we can see, it depends which year group and then we can also say if they are doing some kind of activities where they have to bring about change then they can, that can be one of the components of the portfolio of activity and one can at least ensure that it’s happening we don’t have to be the assessor or the instigator we can co-design and conceptualise”* (PH4). LCAS provides longitudinal exposure in community settings which are arguably more conducive settings for medical students to use their own agency than in clinical settings. These learning opportunities to become change agents is at the core of the recommendations made by Frenk *et al.* (2010:1952) for transformative learning in medical education, but were barely included in the proposed public health competency framework (Chapter 6, Section 6.3.2).

Opportunities to make public health both practical and concrete were identified outside the LCAS experience. One example is to link seemingly mundane tasks to national public health programmes: *“It’s also about making this concept of surveillance less abstract because you know this, these disease notification forms don’t get filled in because they don’t really see the importance beyond their clinic here”* (PH2).

SHSPH workshop participants also identified opportunities for medical students getting involved in advocacy campaigns outside of the LCAS experience: *“There are lots of small little advocacy activities that we can have like there’s a guy that’s doing a global thing about a pledge on no smoking/no tobacco and then you make a huge banner and you can write University of Pretoria MBCHB 1 and you put all the signatures in there and you feel powerful and part of this and they put on the website as part of the WHO Tobacco-free Kids Initiative. That kind of thing...I think we have to brand ourselves as very fun, dynamic and exciting and people-centred...we are cutting across all the fields be it internal medicine you know and that kind of thing. So that’s our whole thing. And many of the kind of our current medical students they have that inert advocacy thing in them they really do, it’s not like the old doctors: ‘I came here to be a surgeon’. They don’t have that, these current*

students they really don't. You can see it in their discussions" (PH3). The suggestion of making public health exciting was a repetition of one of the suggestions by a block chair (Section 7.2.2.3.5) while the health advocate role is one of the CanMEDS roles that have been adopted for the South African context (Chapter 6, Section 6.2).

Suggestions were made to use *"practical things like models and videos um this can also be one of our brag [items], there are a lot of things in occupational and environmental health which are a lot of fun...the things they did for block 2"* (PH3).

The blocks that already include experiential learning were viewed with more satisfaction: *"[SMO 211] is far more, it enables them to do things rather than to just to absorb and they probably retaining a lot more of what they have done in that activity...than they retain of what they were taught in the lecture"* (PH1) and *"like Block [name], they really enjoy it and you can see it in their presentations and in their reflections. That model really works very well for Block [name]"* (PH3).

Because in the final analysis *"our natural strategy is anyway more activity-based"* (PH4).

- *Facilitating learning by clinicians*



An early acknowledgment when discussing strategies was that many of the public health topics can be taught by clinicians within the clinical blocks: *"But those can be covered I think in fact you know by family physicians and other forms of practitioners can also cover them"* (PH1). Not only can public health be taught by clinicians but in some cases it is preferable: *"I personally would feel more comfortable with [occupational health] being taught by clinicians. Because if one goes through the entire ambit of each of the systems there's so many different conditions maybe we just need to identify you know from our point of view what do we actually want to say in terms of occupational health...and I think possibly it will only be...I'm not sure, occupational health legislation whether that will be covered ah, maybe just very broadly address it early on and then leave it up to the other disciplines to talk about the specifics"* (PH2). Although clinicians from the School of Medicine might include a public health perspective it does not preclude the SHSPH from retaining the responsibility to maintain the integrity of the golden thread

even if *“in fact, there are a number of things that we can lease out”* (PH1). The use of the word ‘lease’ here suggests the value of care on the part of the speaker – the responsibility to include public health in the medical curriculum remains with the SHSPH.

The values of care and responsibility was extended further to ensure that public health competencies are developed in collaboration with the School of Medicine: *“We certainly will be the main role players but we need to engage in fact you know our colleagues to ensure that they are supportive to what we believe are the expected skills that in fact a doctor should have. We can sit in our own corner and define in fact you know the outcomes but if the outcomes that we define for a general medical practitioner are not shared by the people who develop the curriculums at home, I think we will probably not be doing justice to ah the students...we would need to engage the curriculum committee in fact you know for the clinical disciplines. They certainly, they can certainly not and should not, try to do it themselves”* (PH1). The progress made with the proposed national public health competency framework (Chapter 6, Section 6.2) has overtaken the need for the SHSPH to develop our own public health competencies for medical students. What remains to be done is to share the latest version (once available) with the clinicians from the School of Medicine and invite their opinion on the proposed competencies.

- *Developing a spiral of learning*

One suggested strategy was a spiral of learning approach so that we know *“what to expect from year 1 what to expect from year 2 ... if I stopped a student and I asked them the question what would that typical response...what do I hope for?”* (PH4)

The learning spiral is also considered a useful strategy for those topics that are introduced early in the curriculum but that could benefit from strengthening in later years. *“We can look for other opportunities...give them a journal article and so we can also try and bring that back again and link...to what they have learned [in SMO211]”* (PH4). Gillam and Maudsley (2009:129) have suggested that it is necessary to reinforce a coherent public health curriculum and make a suggestion of using an overarching framework such as the Liverpool’s Seven Pointers (Section 7.2.2.3.3) to track the spiral progression of learning.

- *Threading a theme*

If the SHSPH is going to focus on the priority health conditions included in our curriculum then a strategy of “*selecting a particular theme that the various...role players can contribute to*” (PH1) becomes a possibility. So once we decide “*what are the core things really that a doctor should have and make the point that throughout, from year one, whether it's year one or year two but once it starts that it continues from block to block and that we talk and we focus on the particular issue...in the subsequent years*” (PH1). The envisaged problem with using a single theme such as ‘maternal and child health’ for the entire duration of medical studies is that the facilitation of learning around a single theme would have to be done by the SHSPH academic staff themselves. This approach is vulnerable to the lack of interest and time by the SHSPH academic staff (Chapter 6, Section 6.4.4).

- *Reflecting*

Reflection is described as “the active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends” (Collins & O'Brien, 2011:392). In block 16 there are two scheduled reflection sessions with small groups (three parallel sessions of approximately 18 students per rotating group). This block lasts for four weeks and is repeated four times (four groups of approximately 50 students each). These structured reflection sessions were identified as a key strategy to promote understanding of public health as these are fifth-year medical students on the brink of starting their 18 months’ practice-based student intern complex. It is this strategic position in the curriculum that provides an opportunity so that even “*a bit of time, maybe about 20 minutes to actually just tease those questions because even just that one session...will make them think*” (PH3). These questions are reflections-before-action of a reality that awaits them: “*I said to them well you know I’m a patient you know and I use traditional medicine...you will find patients like this...what do you do? Or um we don’t have medicine in our clinic so we’ve just decided we are going to send our patients away so what are you going to do, [when] you are the doctor for this clinic?*” (PH3) The proposed public health competency framework is silent on reflection as a public health competency (Chapter 6, Section 6.2) despite reflection being considered as

a critical component in medical education (Driessen, van Tratwijk & Dornan, 2008:827). The School of Medicine's Charter for Professionalism is also silent, as it does not include being a reflective practitioner as part of either professional competence or personal attributes (Chapter 2, Section 2.4.6). Similarly the summary of the characteristics of role models in medicine by Cruess, Cruess and Steinert (2008:718) does not mention reflective practice.

- *Recognising achievement*

One way of raising the profile of public health is to ensure public recognition. This strategy could identify or even create role models within the School of Medicine and the SHSPH: *"People will be awarded some form of recognition ah to say 'well, look we ah had in fact the best doctor who performed in this particular area'...it can start off that way and if we maintain it and encourage that sort of thing we can in fact you know at least create ah some, a small critical mass. It's going to take a long, long time but during the training it's going to be very difficult to get any other/better role models"* (PH1).

A second strategy was to create a public health prize that the Public Health Association of South Africa (PHASA) could bestow upon practitioners who have contributed to the field of public health.

Public recognition could be extended to students who were involved in advocacy campaigns: *"The prize should be an opportunity. Say for instance you are working in tobacco control or something or let's say you working on health systems strengthening then your prize will be you know lunch with Stella Njanga [World Health Organization representative to South Africa] or something like that"* (PH3).

But the first prize in this strategy would be affording public health equivalent stature during the graduation ceremony: *"We're talking at a graduation level where you have all the parents...and all the professors. And because if you look at the prizes it's surgery, gynaecology"* (PH4).

7.2.3.2 *Strategies of engagement*

The theme of engagement is a combination of three categories of engagement: engaging the School of Medicine; engaging the community; and engaging the students.

- *Engaging the School of Medicine*

If retreat from the classroom is not an option (Woodward, 1994:392) then neither is it sensible for the SHSPH to retreat from engaging with the School of Medicine. The difficulty of drawing a clear boundary between public health and medicine (Chapter 5, Sections 5.4 to 5.7) underlines the necessity of proactive engagement with the School of Medicine and the block chairs. If the SHSPH remains passive we could wait a long time for the invitation to participate in the undergraduate curriculum.

In Box 7-2 a pastiche is presented of engaging with the School of Medicine. A pastiche is a data display option that is described by Grbich (2007:216) as “a collage of fragments...which together help to build a more complete picture...[where] the use of different sized fonts and spacings, as well as emboldened information that you want to highlight, help focus the presentation of such information”.

Box 7-2: Pastiche – Engaging the School of Medicine

“The correct way of saying it's not to say ‘I am sure it is covered in paediatrics’, we should engage paediatrics to ensure it is covered to the same extent that we would like to have it covered” (PH1).

“I think it's an opportunity to work with the people who teach ethics and they can do use it as a case study” (PH4).

“I think we have to sit with our colleagues in say family medicine” (PH5).

Engagement with the School of Medicine

“I should think that you know the best opportunity would be to engage them early on before they start preparing for that block chair meeting” (PH1).

“You know I think, I think we certainly will be the main role players but we need to engage in fact you know our colleagues to ensure that they are supportive to what we believe are the expected skills that in fact a doctor should have” (PH1).

“Again the issue we need to engage the clinicians to establish and encourage them if they are not doing so” (PH1).

“It is possible that cardiology does touch on this, but...as part of what we want to drive through, we need to engage cardiology” (PH1).

Besides engaging with the current clinical staff another opportunity was identified – that of the medical education orientation programme (MEOP): *“One is that orientation day – we can ask for a slot...[I] requested to attend that last year to find out how do they describe the golden threads. And it is really...a slide is put up. All nine threads are thrown up at the same time, there's no detail and of course everybody nods when you talk about communication...[but] there's no understanding what the public health thread is” (PH4).*



- *Engaging the community*

Service learning is a form of community engagement that is characterised by the reciprocal relationships between the students and the community (Bender, Daniels, Lazarus, Naude, & Sattar, 2006:23). While the primary goal is to render service to the community, the participating students also benefit by learning through the experience of rendering the service and reflecting on their experiences and insights (Hunt, Bonham & Jones, 2011:246). Service learning:

combines service objectives and learning objectives with the intent that the activity will change both the recipient and the provider of the service. Research has shown that students engaged in service-learning showed an increase in the degree to which they felt aware of community needs, believed they could make a difference, and were committed to service in the future (Buckner et al., 2010:1645).

One way of ensuring the reciprocal benefit is to use authentic tools such as the “*primary health care tool kit for assessing clinics by the Office of Standards of Compliance [OSC]...we could summarise [the] key elements*” (PH3). The intention is that students could make use of the tool as a pre-audit exercise and by so doing highlight the quality standards where the clinics fall short prior to the actual audit by the OSC. In this way we can ensure that the students are “*not doing some[thing] frivolous because I don’t want students to think they are just doing some frivolous thing to get a mark*” (PH2). These kinds of authentic tasks that are done in a practice setting contribute both to the university’s strategy of community engagement as well as to improving the health system. Previous research done on the implementation of a service learning model in our own medical curriculum showed that medical students, service providers and patients all report benefits from this form of community engagement strategy (Wolvaardt, Blitz & Bender, 2010:142-4).

- *Engaging medical students*

The theme ‘strategies to facilitate learning about public health’ (Section 7.2.3.1) identified by the SHSPH workshop participants focused on improving previously used approaches. In contrast this theme of ‘engaging medical students’ signals a powerful departure from

our earlier thinking about the optimal strategies of facilitating learning. As one international expert remarked: *“You are not trying to teach the students public health but engage them”* (IE2). This strategy of engagement emerged as a reaction to the approach to facilitating learning where the sentiment is that *“well, we will just drive them to it because they’ll flunk if they don’t pass the exam and so on which...[but] conscripts aren’t good learners”* (IE2).

A strategy emerged of using the opportunity of our biggest contribution – where the majority of the academic staff of the SHSPH interact with small groups of medical students – in SMO 211 as *“the platform to promote public health...[not only] tell them about this study design, case control, this...do we need to do it that in depth?”* (PH3) This special study module¹⁷ has the largest amount of interaction both in terms of the number of academic staff from the SHSPH and the longitudinal interaction over several weeks and therefore *“my sense is that we should have um this is our show off block so we that’s where we say you know there were people who are like John Snow and all of that but actually you will also be doing that”* (PH3). The necessity of having an impact, of showing off in fact, is because we fail to use any advantage that we might have over the clinical disciplines. For example: *“There is no other way to teach surgery but to do the Power Point [presentation]. We have a lot of ways but they [the surgeons] show off their skill when they go off to a theatre then it’s ‘like wow’ so you know. What’s our show off? When do we show off?”* (PH3) Because we need to build a brand: *“What I want, I want us to be different in public health. We should really be different”* (PH3). The findings from the metaphor project that invited the global community of public health experts to share ideas on building a metaphor or visual model of public health (Chapter 5, Section 5.7) underlined the problem of branding that public health faces.

Important in this strategy was the timing: *“I think we also need to know when can our first contact be with this group? I think it’s important that we sort of hit hard and hit early. And so I’m sure there are things taking place in first year, as you said it’s very scattered and fragmented but if we could use those [opportunities]”* (PH2). This early contact would have

¹⁷ Special study modules are assignments that are linked to blocks.

the benefit of being able to “*sort of wow them when while they've still not seen a surgeon*” (PH4). Subsequent to this workshop a block in the first year of study was identified as a suitable opportunity to test our idea of a ‘first contact’. Any assumption of cooperation was fatally flawed as the e-mail enquiry made in this regard was deleted without the courtesy of a response. This response suggests that our engagement with the School of Medicine is likely to include some failed attempts.



The identification of the module ‘People and their Environment’ (MGW 112) that forms part of the learning opportunities of the first-year medical students prior to their arrival at our campus has opened another opportunity to test this early engagement strategy. But SHSPH workshop participants were concerned about how to make an impression: “*How are we going to knock their socks off? Not the Friday afternoon 4-5[pm] lectures*” (PH4). Perhaps the best would be to look for a block of time: “*One afternoon in fact, if we can get one afternoon*” (PH1). Until one participant pinned down the thought: “*Our secret weapon...our people, our personalities*” (PH3). From this departure the idea quickly took root that we have not only the dean who “*is a public health practitioner, so we use his clout*” (PH1) in our arsenal but also the deputy dean for research who was previously the chairperson of the SHSPH and is an expert in environmental health.

The use of the deans is important for reasons of role modelling because “*it also creates the impression that even within academia*” (PH2) “*there is respect for this*” (PH1). One participant shared that his reason for specialising in public health medicine was because he “*went to [university] the dean was [name] and so sort of immediately maybe subconsciously you know...this guy is a community health specialist and he is the dean of [university] medical school. We've got all these professors and people that have achieved greatness in the clinical world [but he became the dean]*” (PH2).

This strategy of engaging the students necessitates challenging our entrenched ways of thinking about the facilitation of learning of public health in the medical curriculum. Only a paradigm shift will break our monolithic way of thinking and allow us to imagine new possibilities for the facilitation of learning of public health in the undergraduate medical curriculum.

7.2.3.3 *The paradigm shift*



Two key insights combined to shift the way that we were thinking about our educational practice. The first was that the lecture hall is not our boundary and the second was that there are uncontested spaces in the medical curriculum.

- *The lecture hall is not our boundary*

A critical insight is that the public health should not be restricted to the lecture halls as *“it’s crucial for them [medical students] to understand you know what public health is. But I wouldn’t limit it to just only in the classroom scenario because public health is everywhere*



you know” (PH3). And if public health is everywhere then *“the teaching of public health doesn’t just end in the classroom”* (PH3). This sentiment was an early indication of the shift in our understanding of facilitating learning about public health among our medical students.

One of the strategies to reach beyond the lecture hall was that of having ongoing advocacy campaigns with *“the target being the students themselves. The best way of showing them what needs to be done is by doing it and for them to see it and then be part of it. If they see advocacy in action that addresses in fact you know their issues, a certain percentage of them are likely to at least in fact identify with that for the future”* (PH1). Health advocacy is included as one of the CanMEDS roles (Chapter 6, Section 6.2) and is described by Dobson, Voyer, and Regehr (2012:1161) as a combination of agency (advancing the interests of individual patients or working the system) and activism (or advancing the interests of communities/populations or changing the system). In the SHSPH discussions our intentions with advocacy are similar to the description of activism. However the use of the word ‘activism’ can be viewed as problematic as it evokes images of violence and is a possible reason why Frenk *et al.* (2010:1952) use ‘agency’. A necessary requirement to achieve student involvement would be for our school to decide that *“within the faculty, within the university, we will pursue advocacy in ‘xyz’ and we will*

engage the students to be part of it. We are not saying in fact we want them to toi-toi¹⁸ but at least there must be some mechanism by which they feel that they are part of it but that in fact it addresses a particular issue and hopefully by doing that they too, it becomes in fact it becomes second nature to them in fact to act in that particular way” (PH1).

One strategy to overcome the boundary of the lecture hall is to bring the outside world in. In this vignette (Box 7-3) the teller creates an image of small groups of medical students, academic staff and community members on the campus grass – a moment that is often found on university brochures but seldom experienced by our students.

Box 7-3: Vignette – On the grass

I was involved you know with lots of ah um ah community organisations...so lots of input from A[alcoholics] A[anonymous] um sort of ah panel discussions in front of the class where they can ah answer questions from, from the students. Um then we also give them a practical exercise um to work in groups and they then, which was directly you know looking at alcohol use amongst students and you know how they would ah deal with that issue. So something that is very tangible to them. And then the on the second day we invite ah the different community organisations to come in...people that have suffered from this problem, to come and talk about it. They broke up into different groups and on the...lawn to sort of discuss the issue um when we have the um the community organisations sort of walking, representatives walking around just to give their inputs to the groups as well.

This strategy of connecting the students with the larger community beyond the classroom is dependent on a particular understanding of the construct ‘community’. In public health the construct of community has multiple interpretations. In some cases we mean a certain geographic area, or a group of people who have a common characteristic such as patients who attend a particular clinic or professionals who work for the international organisations.

¹⁸ Toi-Toi is a combination of chanting and dancing done as a public expression by groups of people to express unhappiness about something of communal importance.

“Our whole thing is about the people and the community because we are all about the community, we have that community. We can bring Stella Njanga who is the health [representative] of the WHO. I remember the first time when Welile Shasha came to lecture us and he was head of the WHO, we were all like ‘wow’” (PH3). Our particular – and largely overlooked – advantage is our city is the host for the majority of the international organisation’s offices for the African sub-continent.

The vignette ‘making the connections’ (Box 7-4) is illustrative of reaching beyond the boundary of the lecture hall to make public health relevant. The extract is from the narrative of a workshop participant who shares her experience from her first lecture with the first-year medical students. Not only does she share her insight of helping the students to connect new knowledge to what they already know, but she also captures the moment of her connecting with her students.

Box 7-4: Vignette – Making the connections

Because I gave lectures recently on the epidemiology of tobacco control to the first years and ah you know I started with the definition of epidemiology and the slides and then I realised no [laughs] this is not going to work. I saw their faces and I was like okay. I’ve got two hours and this is not going to work. And then I forgot the slides and then we started just chatting about what do you think about tobacco control, who smokes and that kind of thing. So if we can tailor it I find that a discussion type of um lecture, though you’re not taking them out, and maybe if we can put a video or something that really works very well because it’s very tangible...so the first-year student – their only term of reference is their persona, what they do every day in their everyday life, what happens, what do you do when you go to Cool Runnings do you know what Hubbly Bubbly is? Then they put a picture and then you can explain the toxins and...so linking it with you know their level.

I didn't not tell them about the debates they knew them already from talking but saying 'ja freedom [of] choice, freedom of thinking' [about smoking] you know you just interject into what they are saying and it was a lot of fun. More than the next slide, next slide.

This act of linking the outside world of public health to the life experiences of medical

students can be achieved by making the theoretical personal, but also by capturing real life on video and bringing this to the lecture hall. This particular example was one about



capturing the everyday role models in their context and sharing this with the class:

“Which makes [public health practice] in a sense sexy and accessible and it’s a 10-minute video clip where the students can kick back, relax instead of listening to me blah blah blahing. They can see it...without me trying to drag them out into the bundus¹⁹...so we can bring the role models into the classroom” (PH4).

Making public health visible to students requires some ingenuity and some creativity as public health’s ubiquitous nature is our downfall: *“I always hear the virologists or*



microbiologists they always bring their pictures and I always think in my head, what is our picture, you know? Because...the other things: policy and all of that,

they are very abstract. Epi[demiology] can also be abstract in a way but health promotion is very visual” (PH3). The results of the global community metaphor project (Chapter 5, Section 5.7) validate our concern that we do not have a public health picture.

Not only do we not have pictures to excite the imagination, we also lack gadgets: *“Everybody is always showing off about their gadgets...everyone takes them to x-ray machines, MRI and everything” (PH3).* So showing students public health applications of current technology could be a strategy: *“I think this is one of our show offs...you know how they use mobile technology in health um promotion and even for doctors now you know that whole sms-reminder of patients taking their medication” (PH3).*

Overcoming the boundaries of the lecture hall was one key insight; realising there were uncontested spaces in the curriculum was another.

- *The uncontested spaces*

The barriers of lack of space or time in the curriculum, low numbers of SHSPH academic staff and suspected poor interest in public health on the part of the medical students could

¹⁹ Budu: slang term for an empty rural region.

be addressed by one particular strategy – social media. Social media is described by George and Dellasega (2011:e429) as a group of “internet-based applications that allow the widespread creation and dissemination of user generated content”. The idea of using social media originated in the discussion on advocacy: *“I think also in terms of this generation; maybe it's not about you drawing a poster...[but] creating a Facebook page”* (PH2). The chief attraction is that it is a technology that our target audience of medical students are familiar with. A second benefit is that any engagement with students in this social media space transcends both time and place *“because it means that we don't have to fight for time in the curriculum we don't have to have a live person standing in front of them”* (PH4).

Opportunities such as *“holiday internships and all those, the preceptorships actually”* (PH3) could be posted on the Facebook page and announcements such as the call for abstracts for the *“PHASA [conference] is opening up, there are those special scholarships, there's an opportunity to do 'xyz’”* (PH4). Social media such as Facebook could also meet the human need for contact, albeit virtual: *“We can even...when our staff go out they can take a little video of yourself presenting at the let's say at the World Mental Health Conference and you paste it up or something like that”* (PH3). The added benefit of social media is that *“it is a powerful way of marketing the school”* (PH1) and therefore indirectly the specialties of public health and public health medicine.

The advantage that social media has over using our current web page is that *“when you have university web pages there's often a reluctance to...I mean people just tend to ignore it”* (PH2). The interactivity of Facebook makes it a more attractive communication platform than the university's web pages.

The possibility of using the Facebook page as a way to communicate with our students beyond their on-campus time is attractive. *“Exactly! So once they have left our shores as a community service doctor you've still got access to the Facebook [pages]”* (PH4). Especially if part of our strategy is one of strengthening the South African health sector because *“the more you put jobs like if you are an undergraduate so you would think ‘mmm you don't have to work in a hospital, you can be working for an NGO’ it also appetisers them”* (PH3). *“We can target students who are reaching the end and try to capture them before they get on the plane to Sydney”* (PH4) by connecting our Facebook page with

others such as African Health Placements, who recruit for the public sector.

Twitter was also suggested as a strategy but we needed “*somebody that's interesting that comes up as a role model [or] whatever and who's willing to learn how to tweet. We can use that person to tweet with our students to say they are now currently doing this or...if they busy with an outbreak investigation they can tweet about what's happening in the outbreak investigation*” (PH4). The advantage to link our students with role models in public health was “*how we showcase our big guns – we can follow them on Twitter*” (PH2). The ability to reach a mass audience via Twitter addresses the constraint of having few visible public health role models.

The ability to connect with our students in blocks where we are not invited is an added advantage of using Facebook: “*Say for instance we don't have a space in heart and lung block so somebody could...say something about 'do take a look at the paper written on obesity in South African males' or something like that during that time...[or] something like 'congratulations I see that you are in your surgical block. Did you know that surgical complications amount to 43% of blah in South Africa or Africa? Check out the publications'*” (PH3). Although a social media strategy would require some planning and organisation, the appeal is that students would have the opportunity to see “*that we are part of everything. We are not separate*” (PH3).



This fresh approach to thinking about how to include public health had possible student appeal: “*Ja and I think you know in um innovative teaching this is the route as well. Because... students don't see it as learning you know*” (PH3).



In retrospect the strategy was one that ‘lay hidden in plain view’ but we had never had the opportunity to question our intentions and strategies before: “*As I listen to you I say to myself dammit we are looked at being in fact you know the ancient ages and in fact you know this is this is the way to go*” (PH1). Our sudden insight was that “*we should have been in this space a long time ago...because what it is, is a community...and we are supposed to be community-orientated...we should use community-orientated techniques or strategies to teach community-orientated concepts*” (PH4).

And part of that community is not only the undergraduate students, but our postgraduate

students, our alumni and “*the rest of the world of community health*” (PH1).

7.2.3.4 Discussion

Two points of convergence were found between the strategies envisaged by the SHSPH workshop participants and the block chairs from the School of Medicine. The first point of convergence was using experiential learning as a natural strategy to facilitate learning about public health. In particular the LCAS programme – although not free of problems of its own – is a lost opportunity for public health.

The second point of convergence between the strategies of the SHSPH and the School of Medicine is that clinicians can facilitate learning about public health in the medical curriculum. This strategy reduces the distance between public health and medicine and increases the opportunities to demonstrate the relevance of public health in clinical medicine. It is likely that clinicians would need to be supported in this integration and frameworks such as the theoretical framework for integrated learning about public health and clinical practice (Stone, 2000:13) or the Liverpool Seven Pointers (Gillam & Maudsley, 2009:129) could be invaluable. This strategy also links with the role that the SHSPH could play in advising the block chairs with regard to emerging trends and new policies in public health (Chapter 5, Section 5.5.1).

The SHSPH strategies diverge from the School of Medicine strategies in three respects. The first two are strategies that attempt to build a pattern or the bigger picture of public health: ‘developing a spiral of learning’ and ‘threading a theme’. The spiral of learning is an echo of the results of the medical student survey (Chapter 6, Section 6.5.2) that demonstrated that fifth-year medical students performed better on the ten-item ‘test your knowledge’ section than the first years. Year-on-year improvement in knowledge scores was not clear but not of concern for two reasons. The first is the inadequacy of a ten-item test (discussed in Chapter 4, Section 4.9) and the second is that construction of knowledge is not a linear process. The second proposed strategy of ‘threading a theme’ would require a high level of cooperation and planning not only between the SHSPH and the School of Medicine, but also within each block and between each block.

The SHSPH workshop participants added two facilitation of learning strategies: ‘reflecting’ and ‘recognising achievement’. The strategy of developing medical students’ reflective practice is aligned to the SHSPH’s curricular aspirations (Chapter 6, Section 6.2 and 6.3) within the medical curriculum. The use of frameworks such as the Liverpool questions could help students to see the bigger picture of public health and to imagine the effects of their choices on the patient, their family and society in general.

The second strategy of ‘recognising achievement’ was through not only recognising medical student achievement through the mechanisms of conference attendance or graduation prizes, but also the recognition of academic staff. The SHSPH identified that not only should we be recognising clinical staff for their educational practice of integrating  public health, but also recognising those who have the potential to be role models in public health. This strategy of recognition resonates with measures such as those implemented by Harvard University to acknowledge faculty excellence in facilitating learning (Anderson & Kanter, 2010:S3).

The SHSPH strategy of engaging with the School of Medicine suggests an acknowledgment on the part of the SHSPH that a more proactive approach is needed. This strategy is central to the success of some of the other strategies such as ‘clinicians can facilitate learning about public health’. Clinicians will probably require support such as identifying public health implications and developing their facilitation strategies of public health topics. The strategy of developing faculty to improve their facilitation of learning about public health is one of the Public Health Educator’s Network (PHEN) strategies in Canada (Maeshiro *et al.*, 2010:214).

Engaging the community is a strategy that has been used with success in the USA. For example, the Duke University Medical Center has established community partnerships that aim to improve the health of the community by combining individual medical care with public health (Michener, Yaggy, Lyn, Warburton, Champagne, Black, Cuffe, Califf, Gilliss, Williams & Dzau, 2008:408). In comparison, the SHSPH strategy of engaging the community is in its infancy.

The first indication of a paradigm shift in our thinking was the notion of a strategy of engagement with the medical students. This strategy is characterised by the exploration of innovative ways of reaching – not teaching – the medical students.

Our discussions of student engagement fractured the monolithic construct of facilitating learning about public health. Once the notion of how to facilitate learning about public health was fractured we were able to see “different and more effective ways of getting across the messages we think are important”, which Woodward (1994:392) suggests is worthy of our energy.

The use of social media was identified as one of the different ways of facilitating learning about public health. But the key question was the extent to which our students use social media. For widespread usage is necessary for the viability of this strategy.

7.3 Exploring the uncontested space of social media

Answering the question regarding the extent of the use of social media among the medical students necessitated the inclusion of a few questions in the survey that explored medical students’ understanding of public health (the methodology has been discussed in Chapter 4, Section 4.6.6 and some of the findings have already been discussed in Chapter 5, Section 5.4). The exploration of the use of social media is aligned to the changes in the technical and social contexts of medical education that have shifted “especially with respect to technology...knowing and remembering facts are less critical in an age of handheld devices that are better at both” (Berwick & Finkelstein, 2010:S57).

7.3.1 The use of social media among medical students

A total number of 589 students participated in the study, with an overall response rate of 49.4% (Table 7-1).

Table 7-1: Demographic profile and response rate by year group of survey respondents

Year group	Population size	Questionnaires completed	Males	Females	Missing gender	Response rate
First	243	141	55	80	6	58.0%
Second	250	179	56	123	0	71.6%
Third	231	60	16	44	0	25.9%
Fourth	243	99	38	61	0	40.7%
Fifth	225	110	29	80	0	48.9%
	1192	589	195	388	6	49.4%

Among those who indicated their gender (six did not) the majority of respondents were female (66.6%). The vast majority (90.5%) had never visited the Facebook page of the SHSPH. Respondents were asked to report their use of various forms of social media (Table 7-2).

Table 7-2: Frequency of accessing various forms of social media

Forms of social media	Never	%	Seldom	%	Once a day	%	Several times a day	%	Missing	%	Total
Facebook	41	7.0	106	18.0	174	29.5	264	44.8	4	0.7	589
Twitter	361	61.3	94	16.0	43	7.3	70	11.9	21	3.6	589
LinkedIn	517	87.8	28	4.8	8	1.4	3	0.5	33	5.6	589
Google+	194	32.9	119	20.2	131	22.2	129	21.9	16	2.7	589
Blogs	403	68.4	124	21.1	23	3.9	6	1.0	33	5.6	589
University website*	9	1.5	121	20.5	290	49.2	162	27.5	7	1.2	589

*Includes the electronic classroom(ClickUP)

Facebook was the most widely used social media. Among the 585 respondents who answered whether they used Facebook, 74.8% reported using Facebook 'once a day' or 'several times a day'. The highest daily use of media was the university website and electronic classroom.

No association was found between gender and the use of Facebook, Twitter, or LinkedIn. One significant association ($p=0.002$) was between male students and never using Google+, as well as a marginal relationship between female students and never using blogs ($p=0.013$).

The majority (67.5%; $n=394/583$) of respondents used some form of the listed social media at 'several times a day'. Neither the Pearson chi square test nor simple logistic regression found any significant association with 'several times a day' with any of the forms of social media listed or gender. In contrast both the Pearson chi square test ($\chi^2=34.63$; $p<0.000$) and the simple regression model ($p<0.000$) found a significant association with the year of study and use of social media 'several times a day'.

Compared to the first-year respondents, the second-year respondents were 64% less likely to use any of the social media options listed at a frequency of 'several times a day' ($p<0.000$). Third- and fourth-year respondents were 25% ($p<0.558$) and 9% ($p<0.778$) were more likely to use any of the social media considered in the study 'several times a day', although this association was not significant. The fifth-year respondents were 59% ($p<0.000$) less likely to use any of the social media options listed 'several times a day'. There was no linear relationship in the use of any type of social media 'several times a day' as the students progress in their studies ($p<0.3884$).

7.3.2 The link between social media use and knowledge of public health

A ten-item test was developed on the basis of the common misconceptions about public health (e.g. family medicine is a core sub-discipline in public health or public health refers to provision of clinical care for the poor and underserved) or the common visible work of public health (e.g. meningococcal meningitis is a public health emergency). Respondents who did not attempt the test ($n=5$) were considered as missing data while those who did attempt but scored zero were included.

Table 7-3: Knowledge scores of all year groups

Score	(n)	%
0	5	0.9
1	7	1.2
2	16	2.7
3	86	14.7
4	161	27.6
5	150	25.7
6	86	14.7
7	57	9.8
8	16	2.7
9	0	0
10	0	0
Total	584	100

Both the t-test²⁰ and the regression model brought to light a significant difference in the knowledge scores between the first- and fifth-year respondents, with the fifth-year respondents' score 0.86 higher than that of the first years ($p < 0.000$). When comparing the knowledge scores between progressive year groups, there was no significant difference between first- and second-year respondents. In comparison there was a significant difference in the knowledge score from second- to third-year respondents who had a 0.42 higher score than their second-year counterparts ($p < 0.028$). Although the fourth-year respondents had a 0.20 higher score than the third-year respondents, this was not statistically significant ($p < 0.4121$). Similarly there was a very small difference in knowledge between the fourth-years and fifth-years but this finding was not statistically significant. Female respondents had a 0.20 higher score than their male counterparts but this was not statistically significant ($p < 0.1192$).

²⁰ A t-test is a statistical test to compare two groups.

An ANOVA²¹ test was used to explore associations between the use of the different types of social media and the public health knowledge scores. A significant association was found between the public health knowledge score and the use of Facebook with those using Facebook daily or more often scoring higher in the test ($p < 0.000$). Nonparametric testing (Kruskal-Wallis equality of populations rank test) similarly revealed a strong association ($\chi^2 = 14.55$; $p = 0.002$). No other significant associations were found between knowledge scores and use of any other form of social media. Interestingly the 'never' accessing the University of Pretoria website was associated with higher knowledge scores but there were only nine respondents ($p = 0.05$).

The detailed results from the test-your-knowledge section of the questionnaire (Table 7-4) were reviewed.

²¹ ANOVA: Analysis of Variance Analysis is a statistical test to test whether more than two independent groups have different average scores.

Table 7-4: Results of the ten-item test-your-knowledge question

		True		False		Unsure		Missing		Total (n)
		(n)	%	(n)	%	(n)	%	(n)	%	
1	Family medicine is a core sub-discipline in public health	493	83.7	40	6.8	48	8.1	8	1.4	589
2	Restricting access to guns is a key public health intervention	333	56.5	171	29.0	80	13.6	5	0.8	589
3	A jetsetter businessman would benefit from the work of a public health specialist	233	39.6	210	35.7	133	22.6	13	2.2	589
4	Eczema is a condition that needs a public health intervention	280	47.5	201	34.1	102	17.3	6	1.0	589
5	Public health refers to provision of clinical care for the poor and underserved	369	62.6	174	29.5	36	6.1	10	1.7	589
6	Meningococcal meningitis is a public health emergency	487	82.7	43	7.3	45	7.6	14	2.4	589
7	The medical treatment of tuberculosis is not a public health intervention	37	6.3	526	89.3	16	2.7	10	1.7	589
8	Education is the ultimate answer to poverty alleviation	433	73.5	77	13.1	65	11.0	14	2.4	589
9	Public health medicine specialists usually work at district hospitals	300	50.9	147	25.0	131	22.2	11	1.9	589
10	Public health requires knowledge of local cultural systems	519	88.1	20	3.4	45	7.6	5	0.8	589

Shaded areas = correct answer

The findings suggest that the nature of public health itself is poorly understood: public health is related to family medicine (83.7%); public health is clinical care for the poor and underserved (62.6%); and public health medicine specialists usually work in a district hospital (50.9%). Respondents were very confident with the clinical components: the medical treatment of tuberculosis is a public health intervention (89.3%) and meningococcal meningitis is a public health emergency (82.7%). The respondents also recognised that the context of public health requires knowledge of local cultural systems (88.1%). Respondents were the most unsure about whether a jetsetting business man would benefit from the work of a public health specialist (22.6%) and where public health medicine specialists usually work (22.2%). The responses were the most evenly spread over the question regarding the jetsetting business man.

7.3.3 Discussion

The widespread use of accessing Facebook ‘once a day’ or ‘several times a day’ (74.9%; n=438/N=585) among those who answered the question suggests that any educational strategy that uses Facebook would be viable. This widespread use is in line with the literature, where a review of 50 articles by Von Muhlen and Ohno-Machado (2012:777) revealed that between 64% and 96% of health care science students have Facebook accounts.

None of the other forms of social media (Twitter, LinkedIn, Google+ or blogs) reached a similar level of regular use. The use of Google+ ‘once a day’ or ‘several times a day’ was the second most widely used (45.4%; n=260/N=573). The use of the university website and electronic classroom space had the highest reported – daily or more often – use (77.7%; n=452/N=582). Unfortunately the use of the electronic classroom space (ClickUP) is not a suitable strategy for engaging with medical students outside a block as access to ClickUP is limited to only those students who are registered for that block.

The significant association between Facebook use – daily or more often – and the public health knowledge score is suggestive that Facebook might be an appropriate social media for public health to explore as a strategy of engagement. The literature includes numerous articles about the use of social media among medical students or among medical practitioners: from betraying patient confidentiality (Von Muhlen & Ohno-Machado,

2012:779); the need for training (John, Cheema & Byrne, 2012:1129; Von Muhlen & Ohno-Machado, 2012:779) and the development of guidelines for the professional use of social media (George & Green, 2012:156). Other scholars have explored the use of social media as a threat to professionalism (Essary, 2011:52) and the doctor/patient-relationship (Osman, Wardle & Caeser, 2012:e553). The advantage of public health is that many of these concerns regarding social media are not applicable at a population level.

The knowledge score results have to be interpreted with caution as a ten-item test has limited use (Chapter 4, Section 4.9). Similarly the statistically significant difference in knowledge scores between the first-year and fifth-year respondents can only be suggestive of learning of public health in the curriculum.

Building a public health community with medical students outside the dual boundaries of time and space in the curriculum is one innovative strategy that educators might wish to explore. The second innovative strategy is to critically examine the current curriculum timetable to see what opportunities remain unexplored. One of those opportunities is the uncontested space of the elective experience.

7.4 Using the uncontested space of the elective experience

Within our medical curriculum there is a month that is an overlooked and uncontested space – that of the elective in the third year. The purpose of electives in medicine is primarily to enhance emerging clinical skills and related attributes and virtues in different environments, including community settings (Murdoch-Eaton & Green, 2011:645). At our university third-year medical students design and organise their own one-month elective experience but very few – and none since 2007 – choose a public health elective.

The primary reason for this could be that medical students “cannot choose what they do not know” (Wolvaardt, Burch, Cameron & du Toit, 2013:15). In particular, third-year medical students do not have the social capital to identify opportunities in the community that could serve as meaningful public health electives. At the University of Pretoria third year medical students have to design their own elective learning experiences and this approach requires them to identify appropriate learning opportunities. An alternative approach is the use of selectives (a list of options from which students can choose).

7.4.1 The rationale for a public health elective

Public health electives can stimulate interest in public health among medical students and can create awareness and interest in careers in public health (Jeffrey, 2011:23; Tyler *et al.*, 2009:1310; Rosenberg, 1998:187). In addition public health electives are an effective strategy to encourage personal social accountability (Murdoch-Eaton & Green, 2011:646; Carney & Hackett, 2008:166). Public health electives can offer a wide spectrum of learning opportunities on: health policies and services; the psycho-social issues that affect health; understanding different value systems and socio-cultural models; and self-regulated learning and reflection (Murdoch-Eaton & Green, 2011:645).

Public health electives do not need to be community-based but the advantage of community-based organisations is that they provide:

*highly contextualised environments and community intimacy as well as a range of activities that address the socio-economic determinants of health. The activities of these civil society structures hold the opportunity to advance students' ability to construct meaning of the structure and function of the health system and emphasise the services that their future patients can be referred to in this sector (Wolvaardt *et al.*, 2013:15).*

Community-based electives also promote medical students' professional understanding of their "social and public purpose" as doctors (Elam, *et al.*, 2003:194).

The literature on public health electives focuses on what is described as 'global health' or 'international health' electives. The difference (or lack of differences) between 'global health', 'international health' and 'public health' is debated in the literature (Fried, Bentley, Buekens, Burke, Frenk, Klag & Spencer, 2010:535-7; Koplan, Bond, Merson, Reddy, Rodriguez, Sewankambo & Wasserheit, 2009:1993-5). What is important in the descriptions of these global health or international health electives is that the nature of the elective in a foreign country could be entirely clinical. These articles highlight what student preparation is needed, what risks these students face and the effects of the elective on the hosting institution (Anderson, Slatnik, Pereira, Cheung, Xu & Brewer, 2012:207; Wendland, 2012:117; Sharafeldin, Soonawala, Vandenbroucke, Hack & Visser, 2010:90; Hardcastle, 2010:194; Imperato, 2004:362).

But any learning opportunity that exists in foreign locations is arguably not difficult to find in easy reach of the schools of medicine in South Africa.

7.4.2 Designing a public health elective

My strategy was to make use of this uncontested space in the medical curriculum and to design and offer a community-based elective that focused on public health. This innovation was explored as part of the South African FAIMER Regional Institute fellowship (SAFRI) and is described in Chapter 4 (Section 4.4).

The planned elective was based on a service-learning model. A personal reason for the choice of service learning is that this theoretical framework was very successful in the transformation of a fifth-year block in our medical curriculum (Cameron, Wolvaardt, Van Rooyen, Hugo, Blitz & Bergh, 2011:373-9).

One characteristic of the service-learning model is the principle of reciprocity with both student and community benefit. In addition there is a third beneficiary: the university. The benefit to the university is the opportunity to advance our social accountability through the design of electives that address the self-identified students' needs as well as addressing the following three areas of social accountability (GCSA, 2010:3):

- Area 2: Partnering with the health system and other stakeholders;
- Area 7: Supporting continuous quality improvement in education, research and service delivery; and
- Area 9: Balancing global principles with context specificity.

The learning opportunities provided by service learning are considered so beneficial that in the USA the Liaison Committee on Medical Education (LCME) has a standard on service learning as part of the accreditation criteria for medical schools (Buckner *et. al.*, 2010:1645).

Possible community-based partners were identified as the first step in the strategy of developing long-term partnerships for electives in public health. The identified partner is a non-governmental organisation (NGO) called Participate Empower and Navigate (PEN)

and is a faith-based organisation that works in the inner city of Pretoria (PEN, 2013). PEN works closely with other churches, NGOs and government and private structures in the inner city. PEN's vision is "to ignite change, nurture togetherness and heal communities" by improving the lives of the people in the inner city through a number of projects (PEN, 2013). One such project is the Sediba Hope Medical Centre (SHMC). The SHMC is a public-private partnership that uses profits generated from the private medical practice to subsidise community members' health care needs. This community includes the homeless, illegal immigrants, commercial sex workers, drug users, and gay, lesbian and transsexual groups who experience barriers to care.

It was possible to offer three public health electives during the period of this study (2011, 2012 and 2013). Owing to time constraints in collecting and analysing data associated with this activity (the elective starts mid-October), only data from 2011 and 2012 are presented here. The findings of the 2011 survey have been published in an international journal (Wolvaardt, Burch, Cameron & du Toit, 2013).

7.4.3 The 2011 elective in public health

In order to design the first public health elective experience to offer students, an online survey was conducted to determine the needs of the third-year medical students with regard to their intentions for their elective (Chapter 4, Section 4.6.7).

7.4.3.1 Survey response rate

Almost half the class of third-year medical students (47.9% or $n=113/N=236$) accessed the online survey. Of these, 106 completed the survey (93.8%), which represents an overall response rate of 44.9%.

7.4.3.2 Interest in an elective with a public health theme

From the outset it was clear that this innovation had potential, as 77.5% (n=69/N=89) of respondents showed interest – 25 respondents (28.1%) were interested and 44 respondents (49.4%) were possibly interested but needed more detail. Twenty respondents (22.5%) had no interest whatsoever.

- *Factors that influence the choice of elective*

Respondents regarded opportunities to deepen their learning as an important factor (62.3%; n=66/N=106) while proximity to home (35.8%; n=38/N=106) was not a particularly important factor in elective choice (Figure 7-1).

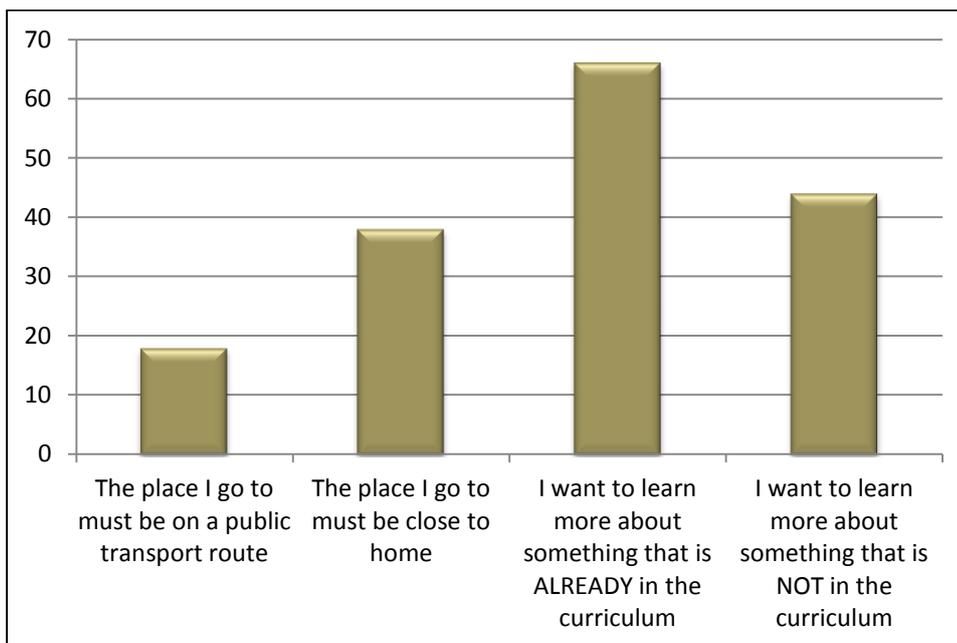


Figure 7-1: Importance of location and content when choosing an elective (number of responses) in 2011

One limiting factor in designing an elective is the financial cost of travel and possible accommodation expenses for students – a major advantage of using an inner-city location that is in close proximity to the university. A small proportion of respondents (16.9%; n=18/N=106) preferred a location on a public transport route. Approximately a quarter (24.7%; n=22/N=89) of respondents thought an amount less than R500 would be

reasonable for the one-month period. A similar proportion (30.3%; $n=27/N=89$) thought that an amount larger than R1 000 was reasonable, while 46.1% ($n=41/N=89$) opted for the middle range of R500 to R1 000.

An open-ended question was used to invite respondents to share any other factor(s) that they consider important when deciding on an elective. Three themes emerged from the data: the institutional factors that support learning; the learning setting; and the opportunity to practise.

Respondents shared their need for institutional factors that support learning: *“It must be well organised, and the staff at the relevant facility where we will do our elective must be well informed of our presence and reason for being there”* (E11/10). The learning setting was also important in that *“I would like to do my elective in a friendly environment where it is conducive to learn and has enough equipment for me to use”* (E11/18). The need to put into practice that which has been learned was evident: *“I would like to choose an elective that will allow me to actively participate, as opposed to simply observing various procedures”* (E11/24) as well as *“somewhere where I will be able to do something and not just told to watch”* (E11/19).

- *Area of interest*

Respondents were asked what they planned to do during the elective period. Sixty-eight respondents participated and it was notable – but not surprising – that the majority ($n=47$) named a clinical specialty such as paediatrics and in many cases more than one specialty. Eleven respondents were interested in the practical aspects of their study: *“Anything. The point is that we understand a lot more if we already understand the theory and then experience the clinical aspects of it”* (E11/11). Some were more adventurous: *“Something that is not in the curriculum but is promising in the evolution and improvement of medicine will teach on how to break new ground and to think outside of the box”* (E11/22). One respondent identified a need for positive role modelling as part of professional identity formation: *“I want to be with a helpful doctor not a person who is going to make me feel awkward and stupid”* (E11/10). There were only two specific mentions of public health topics: *“I want to know the indirect impact of HIV on the living conditions of children*

heading households in Namibia” (E11/27) and the “*interaction between the patient and the health care system*” (E11/38).

- *Number of settings*

There was some ambiguity in the opinions of respondents regarding their preferences for a single setting versus multiple settings (Table 7-5).

Table 7-5: Percentage of respondents’ elective workplace choices (2011)

Statement	Yes	No	Does not matter	Number of responses
I would prefer to work in only one place during the elective	32.1 (n=25)	30.8 (n=24)	37.2 (n=29)	78
I would prefer to work in more than one place during the elective	54.1 (n=40)	14.9 (n=11)	31.1 (n=23)	74

- *Previous community experience*

Almost half of the respondents (44.9%; n=40/N=89) recorded at least one experience working in a community setting prior to their medical studies. Some of the exposure was via a previous degree or as part of school activities and were typically those where scholars “*went on community-based camps with my school where we helped out in rural schools, old age homes and homes for disabled people*” (E11/06).

What was prominent was the early exposure for their studies through voluntary work in a wide range of clinical settings: “*I volunteered in the accident and emergency unit at [hospital] during high-school*” (E11/33) or in social projects: “*I was involved in a youth development programme (our own initiative) back home*” (E11/24).

Predictably, respondents thought that they understood the health-related needs and problems facing their community (Figure 7-2).

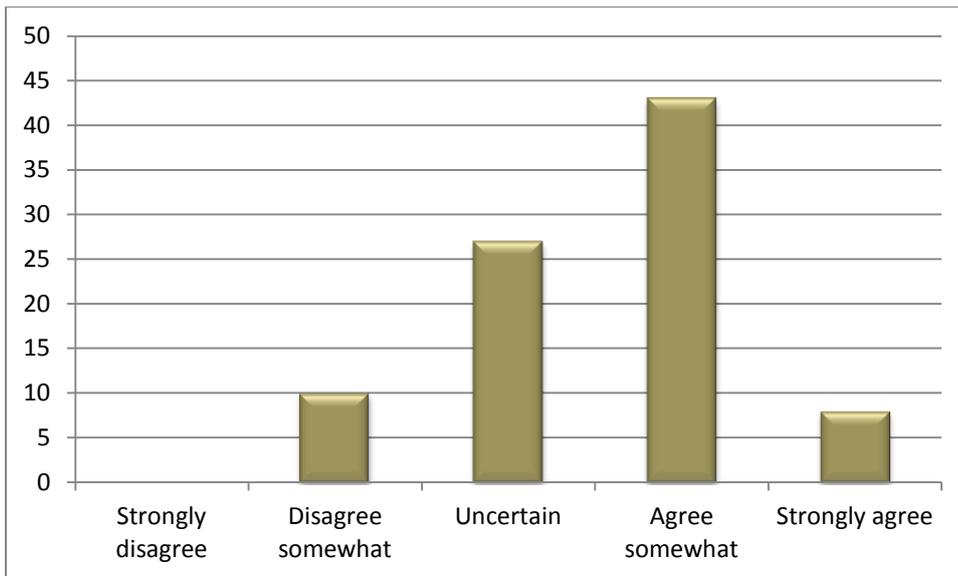


Figure 7-2: Responses regarding good understanding of community health-related needs and problems (2011)

7.4.3.3 Summary of the findings

The respondents' professed interest in a public health elective was encouraging and the online survey highlighted several factors that were important for the design of the elective. One design feature was the question of distance from home. While there was no clear preference for an elective that was close to home (43.7%; n=38/N=89), there were limitations as the associated financial cost was an important factor. The majority of students (70.7%; n=63/N=89) indicated a preference for less than R1 000 for the month.

The final choice was made to use a single setting for the elective. The decision was based on the respondents' weak responses that did not show any clear preference with regard to the number of settings. The initial interpretation of this finding was that the number of settings was less important than the content – especially as students emphasised the importance of the content in the earlier question. This provisional interpretation had to be revisited after the actual final choices of students were known. A marginal majority (54.1%; n=40/N=74) indicated that they preferred working in more than one place. This finding had a meaning that was not clear during the analysis phase.

Not surprisingly the majority of respondents (62.3%; n=66/N=107) preferred electives where they could deepen their understanding of content that is already in their curriculum.

Although public health is already in the curriculum, the low profile of the subject means that it is unlikely that students can readily identify the inclusion. This low profile is most likely the reason why so few students attempt to design a public health elective on their own. The natural preference for the clinical disciplines was evident, as almost 70% (n=47/N=68) of respondents listed a clinical discipline when they were asked what they were planning to do as an elective.

While exploring the other factors that the respondents considered important in their choice of elective the theme of 'institutional factors that support learning' emerged. This theme is important as it reinforces what is described in the literature as the pivotal link between satisfaction with the learning environment and burnout of medical students (Dyrbye *et al.*, 2009:276). It was clear that avoiding haphazard arrangements for learning would be vital to the successful design of the public health elective.

Many students had already had previous community experience prior to their current studies and the majority (57.9%; n=51/N=88) were of the opinion that they understood the health-related needs of their communities. Clearly, the planned public health elective would have to challenge students to challenge their opinions on what they think they know about public health.

7.4.3.4 Enrolment in the elective

Despite all the early positive indications no student enrolled for the public health elective that had been advertised (Chapter 4, Section 4.6.7.3). One student did choose a public health topic that I supervised but did this in Mauritius. In order to understand why no student enrolled I reviewed the actual choices made.

I reviewed the 230 submitted forms and found that approximately a third of students (33.5%; n=77) did not follow the guidelines of a one-month period and had divided their time into two, three and four different activities. This finding suggested that the advertised duration of a one-month period had been a significant barrier. My choice of a month was informed by the university documents that refer to a four-week period for students to learn about **one** area of medicine, but it became apparent that this is not a requirement that is enforced.

7.4.3.5 Discussion

Students had overwhelmingly opted for clinical choices (97.5%) in contrast to the online survey where approximately 70% of students reported that they planned a clinical elective. The most popular choice with 57 students was emergency medicine. Surgery (and sub-specialties) had 75 students and internal medicine (and sub-specialties) had 74 students. Thirty-eight students chose to do general practice – the primary focus of the medical curriculum.

The survey result that showed a small majority favoured working in more than one setting was originally misunderstood as meaning within multiple settings of public health. This understanding was fundamentally flawed as the analysis of the actual elective choices revealed an alternative interpretation – the need to experiment by working across disciplines. The poor uptake of the public health elective was unexpected, as the online survey had shown substantial interest by respondents. A possible explanation for the apparent reduction of interest was that the reported interest in public health was among the 77 students who were more experimental and chose more than one subject area. For these students the one-month design would be an insurmountable time barrier.

While the results from the online survey had provided valuable insight in terms of design considerations (cost, distance from home, experiential, well-planned and well-executed) what was not clear prior to the actual choices becoming known was the role of the time period. For the 2012 elective the time period would have to change.

7.4.4 The 2012 elective in public health

The same online survey was repeated in 2012 and the elective was advertised via a briefing done by a representative from the Education Office (Chapter 4, Section 4.6.7.2).

7.4.4.1 Survey response rate

Less than half (42.2% or $n=98/N=232$) of third-year medical students accessed the online survey in 2012. Of these 88 agreed to participate (89.7%) and, as a result, the response rate is 37.9%.

7.4.4.2 Interest in an elective with a public health theme

Among the 79 respondents who answered the question, interest remained encouraging, with 45 (56.9%) respondents being interested in a public health elective. An additional 25 students (31.6%) reported being possibly interested but needing more detail. Twelve respondents (15.2%) were not interested in the planned elective.

- *Factors that influence the choice of elective*

The majority of respondents (77.8%; n=63/N=81) indicated that they would like to learn more about something that is already in the curriculum (Figure 7-3). A small number (14.8%; n=12/N=81) needed the elective site to be on a public transport route and approximately a quarter of the respondents (27.5%; n=22/N=81) needed the site to be close to home (Figure 7-3).

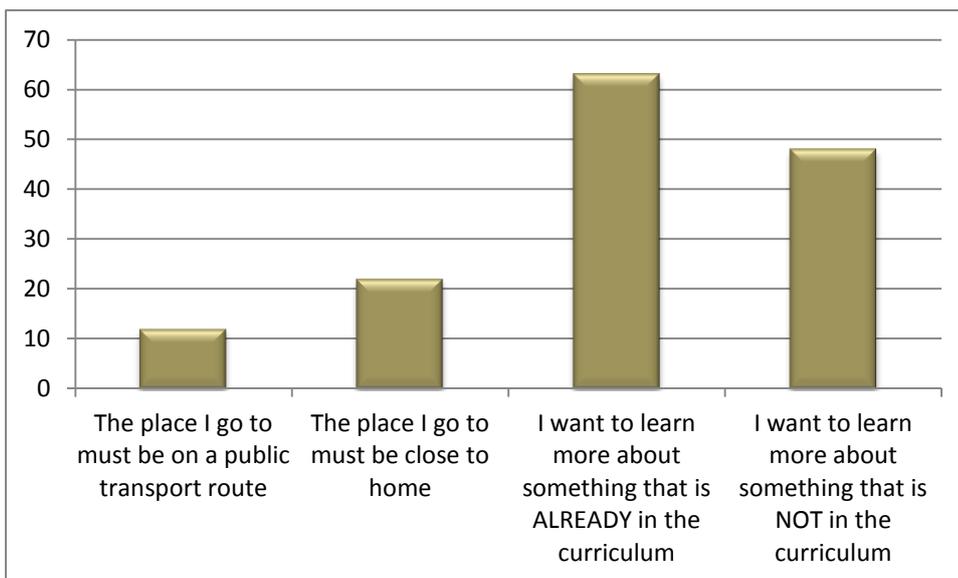


Figure 7-3: Importance of location and content when choosing an elective (number of responses) in 2012

Almost half of the respondents (43.6%; n=34/N=78) thought that an amount of between R500 and R1 000 for the elective period was reasonable. Approximately a fifth of the respondents (23.1%; n=18/N=78) opted for less than R500 while approximately a third (35.9%; n=28/N=78) chose more than R1 000 for the month.

Thirty-four responses to the open-ended question of what other factors influence the choice of an elective were received. The responses were coded and three themes emerged: institutional factors that support learning; the learning setting; and the opportunity to practice.

Specific to the institutional factors that support learning was the specific attitude of the staff towards facilitating the students' learning: "*Some doctors like to teach students what they know. Some doctors hate students. I'd like to go somewhere where the doctors want to teach me something valuable*" (E12/08) and "*if the doctor/mentor will truly help me to learn more and encourage me to become more excited about my future career*" (E12/02).

The emphasis on the learning setting was on exploration of new settings from a general perspective of "*travel experience*" (E12/33) to more specific intentions: "*I would also like to travel in order to experience another city or culture*" (E12/19). A second emphasis was safety.

Respondents emphasised that they would prefer an elective experience where the staff are "*likely to let me participate*" (E12/35).

- *Area of interest*

Sixty-six respondents shared their personal area of interest regarding the elective experience. Almost all the respondents (90.9%; n=60/N=66) named a clinical specialty. Two respondents were interested in general practice, one respondent in research while the rest named an area related to health systems (e.g. understanding clinical practice in the private sector).

- *Number of settings*

Respondents were clear about their preference in working in more than one place during an elective (82.8%; n=58/N=70) (Table 7-6).

Table 7-6: Percentage of respondents' elective workplace choices (2012)

Statement	Yes	No	Does not matter	Number of responses
I would prefer to work in only one place during the elective	29.3 (n=17)	55.1 (n=32)	15.5 (n=9)	58
I would prefer to work in more than one place during the elective	82.8 (n=58)	11.4 (n=8)	5.7 (n=4)	70

- *Previous community experience*

Half of the respondents (50%; n=40/N=80) had previous community experience prior to their medical studies. Thirty-eight respondents gave detail of their community experiences. Outreach activities such as volunteer work in retirement homes and orphanages were common. Several respondents named prior clinical work: “*I volunteered at the Soweto Paediatric Hospice*” (E12/31) and “*pre-med hospital work, Hospivision*” (E12/12) or even added their current after-hours clinical work “*I work as a phlebotomist*” (E12/27).

7.4.4.3 Summary of the findings

The proportion of third-year medical students who accessed the survey in 2012 (42.2%) was slightly smaller than the proportion that accessed the survey in 2011 (47.9%). One possible explanation is that the briefing was done by the Education Office and not by me. Similarly there was slightly poorer participation in the online survey by the 2012 students (42.2%) when compared to the 2011 students (44.9%).

The answers from the 2012 respondents diverged markedly from the 2011 responses with respect to three questions. The respondents wanted to learn something more that was already in the curriculum (77.8% in 2012 compared to 62.3% in 2011); respondents named a clinical specialty of interest (90.9% in 2012 compared to 69.1% in 2011); and respondents preferred to work in more than one place (82.8% in 2012 compared to 54.1% in 2011).

The 2012 respondents emphasised the same factors (institutional factors that support learning, the learning setting, and the opportunity to practice) as important in their choice of elective. Although these factors were the same as those that emerged from the responses of the 2011 survey, there were some shades of difference. The 2012 respondents mentioned learning settings that were in new locations and also underlined safety considerations in their choice of elective.

No changes were made to the planned elective based on the results from the 2012 survey. The poster for the elective was revised to be more descriptive and the name of the setting 'Sediba Hope Medical Centre' was included so that students would understand the setting better.

7.4.4.4 Enrolment in the elective

Six third-year medical students responded to the marketing campaign for the one-week elective (Chapter 4, Section 4.6.7.3). All the participants were female. Among the six students who registered for the elective, two students requested a longer period than was advertised (student 4 and student 5 in Table 7-7). A scholarship to the 'Orphans and Vulnerable Children (OVC) in Africa Conference' was arranged for student 4 and accompanying clinical staff on a mobile HIV testing unit was arranged for student 5.

Table 7-7: Planned participation in the 2012 elective

Name	Week 1	Week 2	Week 3
	Sediba Hope	Sediba Hope	OVC conference
	15-19 October 2012	22-26 October 2012	30 Oct-2 Nov 2012
Student 1	X		
Student 2	X		
Student 3	X		
Student 4	X	X	X
Student 5	X	X and mobile units	
Student 6	X		

Possible activities were discussed on the basis of students' personal interest and personal learning goals, as well as the learning opportunities available in the inner-city community. The community partner designed the activities for the week, according to this feedback.

7.4.4.5 The public health elective

The elective started at the SHSPH with a short briefing session that included an orientation to the elective and some clarification of what students' hoped to learn in the elective. Once this was completed we all travelled to the elective site, Sediba Hope Medical Centre, together.

The facility manager briefed us on the week's activities and shared the programme for the week. Before the end of the briefing session three more participants (student 1, 2 and 6) asked to extend their elective for one more week, and four more requested to stay for the third week (student 1, 2, 5 and 6). The final participation in the elective translates to a total of 15 weeks of learning (Table 7-8).

Table 7-8: Actual participation in the 2012 elective

Name	Week 1	Week 2	Week 3
	Sediba Hope	Sediba Hope	OVC conference
	15-19 October 2012	22-26 October 2012	30 Oct-2 Nov 2012
Student 1	X	X	X
Student 2	X	X	X
Student 3	X		X
Student 4	X	X	X
Student 5	X	X and mobile units	
Student 6	X	X	X

Students were given a bag with copies of some key reports on programmes and projects that are active in the inner-city as background material (Figure 7-4).



Figure 7-4: Elective students with bags (2012) [Used with permission]

I accompanied the students to the site every day for the first week and stayed onsite while they were engaged in the activities, such as the home-based care visits (Figure 7-5) where they accompanied the home-based health care workers. The reasons for not accompanying the students into homes were two-fold: first the spaces in the shacks are small and second the home-based health care workers are the experts in guiding the students and explaining the various programmes.



Figure 7-5: Doing home visits [Used with permission]

At the end of each day I carried out a debriefing session to review the day's experiences and their understanding of the experience. These sessions were also used to manage any unmet expectations or disappointment such as the low numbers of people that required students' care during the home visits. The opportunity was used to describe the multiple projects that are active in the inner-city and the positive effect of these interventions, as well as problems in service delivery such as duplication of effort.

I accompanied the students to the various social projects that PEN runs such as their crèches and houses of safety as there were opportunities to discuss the socio-economic determinants of health and the funding problems that NGOs face.

The planned week (Table 7-9) was adapted on the basis of the emerging interests of the students, such as a visit to the Foundation for Professional Development (FPD) that secured the funding for the treatment of HIV-positive vulnerable populations in the inner-city.

Table 7-9: Activity sheet of week one of the Sediba Hope elective

	Monday	Tuesday	Wednesday	Thursday	Friday
Learning outcomes	Understand the value practice of NGO activities in provision of care to underserved and vulnerable groups Explain the role of NGOs in the provision of care to the HIV+ population as a result of past political circumstances and the contribution by foreign donors Discuss the role of private practice within the envisaged NHI environment Discuss the holistic activities of the NGO in addressing the socio-economic determinants of health Discuss the funding challenges that face the NGO and the strategies that have been employed to overcome these challenges Describe the changing PEPFAR funding environment Create a social media platform (Facebook) as a marketing tool for Sediba Clinic				
Morning	Orientation to elective Orientation to Sediba Clinic and the work of the NGO (PEN) Agreement on the outcome for the week =Facebook page for Sediba Clinic Discussion of creation of a private for profit practice as a funding option for PEN. Discussion of Sediba Clinic as a pilot site for costing for the	Students participate in the activities of the home-based care workers	Discussion of research opportunities (HPV E6/E7 MRNA and pap smear validation study) for Sediba Clinic Identification of other inner-city activities and populations (OUT) Plan to visit OUT Students participate in the activities of Sediba Clinic	Visit to the PEN ministries: - Foundation and the Bridge In Sunnyside: - Outreach Hub - penKids - inFusion Discussion of volunteering, the new Child Act etc. Volunteering at site	Visit to the PEN enterprises: -Pennies Nursery School In Sunnyside: -Sun Sparrows Nursery School -Precious Pearls (Place of Safety) Help with feeding at Sun Sparrows Plan for activity in week 2 with Sun Sparrows

	Monday	Tuesday	Wednesday	Thursday	Friday
	NHI. Orientation to the activities for the week Walk through and introduction to staff		and Sediba Wellness		
Afternoon	Students work in groups of two and observe work and discuss activities/roles etc. with staff	Review of the experiences of home-based care Discussion of the use of new categories of workers, the rationale, the challenges etc. as part of the HR strategy in RSA	Visit to FPD -Intro -Health systems strengthening -Compass project: mapping activities -Thuthuzela project -Clinical and management training	Volunteering at site	Discussion of the 5-star doctor concept (Boelen) Wrap-up discussion Plans for week 2 and the OVC conference Agreement on the post-placement assessment (Survey Monkey) Celebration at MacDonalds

During the week other learning opportunities were identified. One such visit was to OUT. OUT provides health services and general lifestyle advice and support to the gay, lesbian and transgender community (OUT, 2013). Students were also given time to go and speak to a general practitioner in the inner-city who treats many inner-city patients who cannot pay. The visit to OUT provided the students with a chance to deepen their understanding of these marginalised groups and to confront their own prejudices. The visit to the general practitioner was aimed at providing the students an opportunity to understand the personal values and sense of social responsibility that drives this white, female general practitioner who works in an almost exclusively poor black community.

The students offered to do a health talk with the children from the PEN-owned inner-city crèche: Pennies from Heaven. The students identified a need for soap and supplies and wrote a short proposal to secure donations from a pharmaceutical chain. These planned activities formed part of the second week, which also included accompanying roving clinical mentoring teams. The description of the learning outcomes was written by the students themselves (Table 7-10).

Table 7-10: Activity sheet of week two of the Sediba Hope elective

	Monday	Tuesday	Wednesday	Thursday	Friday
Learning outcomes	<p>How to write professional proposals or less formal concept letters for accessing grants, sponsorships and donations</p> <p>Discuss medical challenges in the inner city of Tshwane and understand how NGOs function to relieve some of these challenges</p> <p>Discuss the quality of life of children who are removed from their families by the court and placed in places of safety. Refer specifically to the role of the social worker and how they fit into the multidisciplinary team that tends to the population of the inner city of Tshwane</p> <p>Understand the concepts of biological sex, gender, sexual orientation and sexual play and how these concepts influence the medical practitioner's approach when dealing with disease, as well as the psycho-social elements of these patients</p> <p>Discuss controversial ethical issues e.g. homosexuality and the doctor's ethical rights and career-related responsibilities toward such patients</p> <p>Discuss health promotion and education in the inner city and understand how a little education at a young age can go a long way in preventing the spread of infectious diseases</p> <p>Understand the needs and shortages in rural areas around the city and how funded doctors from companies e.g. FPD, help to relieve the burden on primary health care staff, as well as educate them on difficult medical cases so as to equip them to deal effectively with similar cases in future</p>				
Morning	Students introduced to proposal writing to the clinic manager and write concept letters to	Visit Dr Bothma, who has her own practice in Church Street to learn about	Pick up donations from Dis-Chem who responded to concept letters written on Monday	Students divide into two groups and accompany the clinical mentoring teams in the district on	Students teach children at Pennies about hygiene in an interactive way. Create a Facebook page for Sediba

	Monday	Tuesday	Wednesday	Thursday	Friday
	Checkers and Dis-Chem as practice round Prepare Powerpoint™ slideshow and activities for interactive Hygiene talk for Pennies Pre-Primary School children	the population she serves and what challenges she experiences in the inner city Correlate how NGOs (e.g. PEN) fills the gaps in the system	Students take all donations to the community centre and incorporate the Pilates equipment and weight scale in Sediba Hope Medical Centre's physiotherapy department	FPD's roving units Groups visit Ga-Rankuwa and Hammanskraal clinics respectively	Hope Medical Centre
Afternoon	Students drop off concept letters at Checkers and Dis-Chem	Students visit place of safety for high school girls with social workers from Sediba Hope Medical Centre	Visit to the NGO OUT that caters for the health needs of gay, lesbian and transsexual population	Groups visit Ga-Rankuwa and Hammanskraal clinics respectively	Wrap up and sign off elective forms

Students were no longer accompanied by me in the second and third week of the elective, as these two weeks did not form part of the original planning and I had other academic commitments. In week three the five remaining students attended the OVC conference (Figure 7-6).



Figure 7-6: Elective students attending the OVC conference [Used with permission]

7.4.4.6 Perspectives on the success of the elective

The success of the 2012 elective was explored from three perspectives: the students', the community partner's and my field notes.

The participants in the elective were sent a link to a Survey Monkey® that contained five closed-ended and six open-ended questions (Appendix S). The questions were developed on the basis of results of the two online elective questionnaires. The questionnaire was reviewed for clarity.

The original plan was a paper-based questionnaire that was supposed to be completed on the last day of the one-week elective. Owing to the staggered end dates of the elective I opted to use an online version of the questionnaire rather. The link to the survey was sent out to them one week after the completion of the elective. Five out of the six students participated in the survey.

- *Design perspectives*

Opinions on the marketing material such as the poster and the briefing session were divided. Two respondents thought that the marketing was 'not at all useful'; another two

found the material ‘somewhat useful’ and only one found it ‘very useful’. One respondent remarked that: “*Well, I do not remember seeing the public health elective posters and the elective itself was not well marketed*” (Sediba12/01).

Participants were asked to rate their elective experience over the range of factors that had been identified as important by the respondents from the two online surveys (Table 7-11).

Table 7-11: Respondents’ opinion on the elective experience

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The staff were friendly					5
I felt supported in my learning					5
The activity was well organised				1	4
I felt able to participate					5
I learned about the work of NGOs					5

Respondents suggested that “*when the elective is presented in class, there should be a brief overview of what it will be about and there should be pictures of previous students who did the elective. Perhaps the lecturer involved should be the one to present it to the third years*” (Sediba12/01). This was a clear indication disadvantage of my not being able to do the presentation in person. A second suggestion was “*getting the basic information of what we will be doing before the elective itself starts*” (Sediba12/03).

- *The educational experience of the public health elective*

Respondents felt that they had achieved their personal learning goals: “*I improved my knowledge on the subject of public health. I am most certain that I won't have had this opportunity of learning in the future and experienced a lot of the workings of an NGO. This enables me to know how the system operates, which I can use in the future. I also now know of a model for the future that I can use to open a private practice if I so wish that can contribute towards public services rendered and financial up-keeping thereof. My knowledge of health systems broadened and some new insight was given through OUT and FPD*” (Sediba12/05).

Respondents were asked to reflect on their learning and to evaluate how valuable some key activities were to their learning (Table 7-12).

Table 7-12: Respondents' perception of the value of key activities

Activity or visit	I learned a lot from this	I learned something from this	I did not learn from this	I did not participate in this
Sediba Hope Clinic activities	4	1		
PEN activities	2	3		
FPD visit	5			
OUT visit	2	3		
OVC conference	4			1

Responses to the most memorable event of the elective included all the aspects of the elective. Included were the new experiences: *"The OVC conference was definitely memorable"* (Sediba 12/01) and *"our visit to OUT was memorable as it taught me to look through 'a doctor's eyes' at patients and not to judge"* (Sediba 12/02). But the self-designed hands-on activity was the most commonly cited: *"We decided to do a project on hygiene for Pennies pre-school. This was a highlight of my elective. The ability to contribute to where there were needs. Giving of much needed items to the community centre and Pennies after only a few days to get sponsors. Even my family and friends helped by giving donations. The whole task of getting everything and pulling it off was amazing"* (Sediba 12/05). A final highlight was accompanying other members of the interdisciplinary team in their daily work: *"I also will never be able to forget the community outreach with the health care workers, walking from Bosman street to Marabastad and then to Salvokop to see some of the Schubart residents"* (Sediba 12/05).

It was clear that without a structured pre-designed learning opportunity these students were unlikely to have considered an inner-city experience: *"I enjoyed getting to know the inner city. We tend to look 'over' the city, being blind to the troubles of our population"* (Sediba 12/02) and would not have understood the needs of the inner-city inhabitants: *"I on my own would never have walked through the inner city. It gives you a much needed perspective of the health systems and the health services. The diversity of all the people. The types of services rendered"* (Sediba 12/05).



Respondents suggested that even more hands-on activities should be included in future public health electives: “*Getting more involved in the projects at FPD – instead of simply hearing about them*” (Sediba 12/02) and “*maybe visit government facilities and see how public health is being handled*” (Sediba 12/04) as well as “*including of [a] mobile unit visit for all – especially to practise counselling*” (Sediba 12/05).

When asked, all of the respondents stated their intentions to stay involved with the activities of the NGO in future: “*Yes, I do not know how yet, but I shall keep a close eye on their website and stay in touch!*” (Sediba 12/02).

Elam *et al.* (2003: 200) suggest that community-based electives provide benefits for medical students’ professional development. Some of these potential benefits were explored by asking respondents whether they thought the elective experience contributed to these aspects of professional development (Table 7-13).

Table 7-13: Respondents' opinion of the influence of the elective on their professional development

	No	Somewhat	Yes	Not applicable
Becoming a health care professional		1	4	
Developing a sense of citizenship		2	3	
Understanding the culture and diversity of others		1	4	
Understanding your own views of South African health care		1	4	
Learning about population-based initiatives			5	



The theme of the general comments was that the elective was ‘*an eye opener*’ (Sediba 12/03). One respondent elaborated by explaining how the elective made her see things differently: “*Thank you for organising an eye opening experience! The world of medicine has opened up a lot bigger in my mind! I definitely learned some important things that I would never have gained through a simply clinical elective*” (Sediba 12/02). Respondents seem to suggest that public health was hidden in plain view: “*The whole two*

weeks enriched me and opened doors that I never knew existed or to look for” (Sediba 12/05).

All of the respondents (n=5) wrote that they would recommend this elective experience to a peer.

- *The community partner’s experience of the public health elective*

The community partner was asked a number of questions (Appendix K) regarding their experience of hosting the medical students. The clinic manager responded on behalf of the hosting organisations (Sediba Hope Medical Centre and PEN). The motivation for hosting the students was the opportunity to showcase PEN (the NGO) as a leader and pioneer in its programmes and interventions. The clinic manager thought that the elective “*was clearly an eye opener to what has actually being done on the ground. They experienced ‘grass roots’ implementations that they will not read in their medical text books” (Sediba12/manager).* The clinic manager suggested that they would recommend this experience to a peer if that organisation “*had the time and resources to have a group of medical students within their setting” (Sediba12/manager).*

- *My experience of the public health elective*

The immediate engagement with the activities of the elective combined with the extension of the period of the elective by all the students who could (student 5 already had a week organised with a medical specialist) challenged my provisional understanding from the 2011 elective. The failure of managing to attract any third-year medical students in 2011 and a review of their subsequent choices had suggested that in order to be successful in attracting students to a public health elective a shorter duration was indicated. This provisional understanding proved to be astute, as the 2012 elective did indeed attract students with the one-week design, but what was unclear at the time is that once in the setting, the barrier of lack of interest about public health was surprisingly easy to overcome. The strategy of accompanying the medical students to the community setting and remaining with them for the first week presented opportunities to identify new learning opportunities but also to co-construct the meaning of the experiences. The rudimentary plan of the elective prior to the start allowed for “unscripted and unplanned teaching and

learning experiences...mostly from *ad hoc* interpersonal communication among and between faculty, students and [the host organisation]" (Jerant, Srinivasan, Bertakis, Azari, Pan & Kravitz, 2010:608).



Their memorable moments and their stories of the effect of the elective on their understanding of vulnerable populations in the inner city and the contribution of NGOs in the delivery of health care services suggest that I had some influence in their learning.

7.4.4.7 Discussion

The innovation to design a public health elective had its origins in the literature that describes the learning opportunities of the elective experience. A second reason to pursue the design and development of a public health elective was that in our curriculum it is an uncontested space.

The feedback of the 2011 survey refined the service learning design of the planned public health elective, but despite early signs of interest no student enrolled for the elective. The review of the actual choices made revealed that a substantial proportion of the students had divided their one-month period into shorter periods. It is probable that those students who showed initial interest are also those students who wanted to explore multiple options. For this reason the duration of the planned 2012 elective was reduced to one week (with an option to extend).

The results from the 2012 pre-elective online survey did not necessitate any changes to the planned elective. Six students enrolled for the elective and unexpectedly all those who only enrolled for the planned one-week option decided to extend their elective period. Respondents reported looking at both public health and the inner city differently. One of the success factors in the elective was possibly my onsite presence in the first week to guide the students to frame their learning and to identify emerging learning needs and opportunities. Tyler *et al.* (2009:1309) report that the use of service learning strategies or the placement in community-based settings does not guarantee meaningful learning experiences for medical students. It is quite likely that being an 'outsider' hampers medical

students from being able to construct meaning of the structure and function of NGOs in the health system on their own.

My experience of the 2012 elective cements my agreement with Tosteson (1979:693) that all we have to offer our students is ourselves, because everything else they can read for themselves.

While the results of the 2011 elective resulted in a change made to the elective period, the results of the 2012 elective resulted in a change in the way I thought about overcoming the conceptual horizon of public health.

7.5 Conclusion

The rift between public health and medicine is seldom acknowledged but this separation still influences our present thinking. The desire to reduce the distance between public health and medicine has become critical in the light of our current health care challenges that need a population perspective. This re-envisaged role of the medical practitioner is not new but has been overshadowed by other pressing changes in medical education that were necessary in order for the shortcomings identified by Flexner to be addressed. The centenary of the Flexner report stimulated interest among scholars to revisit the recommendations of the Flexner report and to reflect not only on the progress made, but on what challenges we currently face in medical education. The Frenk *et al.* (2010) commissioned article is arguably the most influential of the centenary articles. In their article Frenk *et al.* call for transformative learning approaches and systems-based education. In their interviews the two international experts reminded us of the rift between public health and medicine and framed it as a loss that requires a strategy of social accountability to repair.

And strategies are needed. Not only to repair the rift between public health and medicine, but also to include public health in medicine.

But strategies to include public health in the medical curriculum face three constraints described by Berwick and Finkelstein (2010:S56-7):

(1) we can't give up the current content (because our students need to know it); (2) we can't merely layer new material on top of the old (because there is no spare time in the curriculum); and (3) we can't allow the status quo to persist (because we will thereby miss the social need).

The clinicians from the School of Medicine were asked what strategies they currently use, or suggest using, to include public health in the medical curriculum. Block chairs shared a wide range of formal and informal strategies of including public health in their blocks. Some of these strategies are institutional strategies while some are idiosyncratic. Nevertheless, a rich seam of strategies runs through their practice. These strategies to include public health in the medical curriculum converge with the strategies of the SHSPH at two points: the use of experiential learning and clinicians are able to facilitate learning about public health. While delving into the strategy of experiential learning, a second loss was unearthed – that of the loss of the relationship between the Department of Family Medicine and the SHSPH – resulting in our exclusion from participating in the LCAS programme.

The SHSPH diverged from the mainstream of strategies to facilitate learning to include strategies to construct the bigger picture of public health through the recognition and development of role models, as well as using themes to link public health topics together. The SHSPH strategies overflowed to explore engagement strategies with the School of Medicine and the community but – most importantly – with the medical students. It was within the strategies to engage with the medical students that we experienced a paradigm shift in our belief that we can overcome the boundaries of the lecture hall and of time and space in the curriculum.

The use of social media to overcome the dual barriers of time and space is dependent on the wide use of social media among our students. An exploration of the use of social media suggested that Facebook is the most viable strategy both in terms of widespread use and the frequency of use. An unexpected finding in the student survey was the association between the use of Facebook and the public health knowledge scores.

Although this finding must be interpreted with caution because of the small number of items in the knowledge score, it does reinforce Facebook as a suitable strategy to pursue.

A second strategy to overcome space in the curriculum was the creation of a public health elective.

The design of the public health elective was based on the results of the online surveys that explored the factors that third-year medical students take into account when designing their elective experience. Despite early interest no students enrolled in 2011, which led to a review of actual choices made. The results of the review suggested that a shorter period for a public health elective might attract those students who are experimenting with different elective experiences.

In 2012 the shorter public health elective did attract attention and six students enrolled. What was not expected was the decision on the part of all those who enrolled for the one-week option to extend their period. This decision and the student feedback suggest that engagement with the medical students in a mutual learning experience can allow both parties not to only look but also to see public health in a new light.

The next chapter, Chapter 8: Theorising practice, brings together the tributaries of literature, the myriad findings of this research and my changed understanding of the facilitation of public health in the medical curriculum into my living theory.

8 CHAPTER 8: THEORISING PRACTICE

8.1 Introduction

In this chapter I introduce the living theory of my practice and the living theory of the context of that practice. This living theory has been developed through reading the literature and the findings of my action research. My living theory is also a result of the deepening of my understanding of my practice within the “complex, multifaceted reality of intersecting aspects embedded in rich contexts” (Grbich 2007:230).

This chapter reintroduces the research questions that have guided my action research:

- How do we conceptualise public health in the undergraduate medical curriculum?
- What are the intended educational achievements of public health in our undergraduate medical curriculum?
- How can I influence my colleagues’ teaching practice to advance the value of public health in the medical curriculum?
- How do I model characteristics of transformational educational leadership in public health with both my students and colleagues?

The aim of the research has been to articulate a living theory of my educational practice and to deepen my understanding of both my educational practice and my practice context. Implicit in this aim was the exploration of my professional knowledge, professional practice and educational leadership through my own and others’ sense of agency. The impetus for this research was the desire to live my professional values in my educational practice more fully, to transform my educational practice and to make public my personal experience of educational practice.

The research findings are briefly reintroduced as a foundation for the introduction of my living theory.

The potential research significance of this research to enhance the educational opportunities for public health in our medical curriculum is described first. A discussion

then follows of the limitations of the research and the process followed to establish the validity of the inquiry.

Suggestions for further research and practice are outlined prior to the closing remarks of this chapter.

8.2 Overview of findings

The trilogy of findings chapters (Chapters 5, 6 and 7) trace the evolution of my living theory from Origins and Understanding, through Intentions and Aspirations to a final stage of Strategies and Exploration.

Chapter 5 introduced the perspective of the fundamental tension between public health and medicine as the origin of the current rift between the two disciplines. This primary tension is magnified by the finding of the multiple concurrent understanding of public health among the medical students. This finding together with the perspectives regarding public health among the block chairs, the SHSPH workshop respondents and the global online public health professionals challenged the implicit assumption that we all understand public health in a similar way.

The uncertainty of the boundary between public health and medicine was either emphasised as a gap to be breached or viewed as being part of an indivisible continuum or spectrum of medicine. Alternatively, the view that public health is not only an extension of medicine but is also ubiquitous implies that any attempt to describe an absolute boundary between public health and medicine (or closure) will be difficult. The findings reported in this Origins and Understanding chapter underline the postmodern view that “reality is shifting and uncertain...the world [is] complex and chaotic and reality is multiply constructed and transitional” (Grbich, 2007:9).

Chapter 6, Intentions and Aspirations, introduced several more tensions. The development of a draft competency framework signifies substantial progress in collaborative thinking around the inclusion of public health in the undergraduate medical curriculum in South Africa. At the same time the proposed framework represents a potential tension between

national and institutional intentions and aspirations. The question of whether this tension will become problematic is whether the agreement of common competencies will interfere with the unique characteristics of each individual curriculum (Johnson, Donovan & Parboosingh, 2008:417). Gillam and Maudsley (2009:130) emphasise that medical schools should (among other activities) develop clear educational goals and should “take a pragmatic approach to the ‘need to know’ versus ‘nice to know’ in the curriculum”. The authors argue that this approach will use the time available for undergraduate public health education better. This approach and the proposed competency framework do not accommodate the SHSPH’s aspirations described as the development of social consciousness among our medical students.

The current version of the proposed public health competency framework does not entirely promote the ‘new professionalism’ that Frenk *et al.* (2010:1951) refer to, as there is not yet a:

set of common attitudes, values, and behaviours...as the foundation for preparation of a new generation of professionals to complement their learning of specialties of expertise with their roles as accountable change agents, competent managers of resources, and promoters of evidence-based policies (Frenk *et al.*, 2010:1951).

The analysis of the block books reveal an unknown inclusion of several public health topics in the period prior to when medical students start their studies at our campus. The analysis also suggests some areas of weakness such as occupational health and medical economics, although the latter is constructed as a separate golden thread in our curriculum. The block book analysis is arguably crude but was useful to map out the extent to which public health topics are currently included in our medical curriculum. The analysis also suggests that the public health inclusions are mostly at the lowest level of Bloom’s taxonomy namely knowledge.

The block chairs shared how they manage the tension in balancing a global and local relevance in their blocks – a tension that is unavoidable as the global-local dichotomy is both part of the institutional vision and is enshrined in regulation.

The exploration of reported constraints to include educational opportunities for public health in the medical curriculum revealed: academic staff’s time, academic staff’s interest

and availability, medical students' interest, and assessment opportunities. Both the block chair interviews and the SHSPH workshop participants agreed on these constraints and the constraints are similar to those described in the literature (Maeshiro *et.al.*, 2010:214; Johnson, Donovan & Parboosingh, 2008:416; Woodward, 1994:390; Riegelman, 1991:254). This research added an additional tension – that of using an integrated thread approach to include public health in the medical curriculum.

No block chairs reported using the University of Pretoria's (UP) standard end-of-block student feedback mechanism to explore the inclusion of public health in their blocks. Block chairs did report the use of less formal and passive methods such as lack of complaints and analysis of the open-ended questions that are included in the standard end-of-block feedback forms. An argument was built against exploring student feedback regarding the golden thread of public health and not the other eight golden threads.

Chapter 6 also explored the necessity for change in the facilitation of learning about public health in the medical curriculum. Medical students were asked for feedback regarding their overall educational experiences of public health in their studies. The comparison between the Canadian and American medical graduates' educational experience and the UP fifth-year medical students revealed a startling similarity of findings. The public health topic that was the most dissimilar was the "role of community health and social service agencies". This finding suggested that it is possible that the Longitudinal Clinical Attachment Programme for Students (LCAS) – that ensures early and sustained engagement with the community – has benefits for public health education. The student feedback from all the year groups pinpointed some possible areas of weakness that correspond to those weaknesses thought to be reflected in the block books. The results from the univariate multinomial regression models suggest that medical students' learning about public health time is constructed over time. This phenomenon might be a feature of the longitudinal inclusion of public health as a thread.

The medical students confirmed that the key values described by Boelen (1993:6-7) are emphasised in their curriculum. The key value "commitment to access for underserved populations" from the Association of American Medical Colleges (AAMC) questionnaire attracted the weakest agreement. This finding was possibly due to the South African context of health care.

The final findings chapter, Strategies and Exploration, revisited the inherent tensions as a basis to explore strategies to heal the breach between public health and medicine and to include public health in medicine.

All the strategies identified by the block chairs and the SHSPH workshop participants converged at two points: 'experiential learning' and 'clinicians can teach public health'. The strategies identified by the SHSPH workshop participants diverged from the main stream of ideas with the inclusion of strategies of role modelling, strategies to promote the bigger picture of public health and finally, strategies of engagement.

These strategies of engagement incorporated strategies of engagement with the School of Medicine, but more importantly, strategies of engaging the medical students around public health topics. A paradigm shift occurred in our thinking about the perceived barriers of limited time and space in the medical curriculum. Two strategies were identified that could use the uncontested space in the medical curriculum. The first was the use of social media.

Medical students' use of various types of social media was explored via the medical student survey. In short, medical students use a variety of social media daily or more frequently with Facebook as the most popular choice. The tentative finding that the regular use of Facebook is associated with a better understanding of public health – expressed as a knowledge score – suggests that Facebook is a strategy worth exploring for the facilitation of learning about public health.

The second strategy to use an uncontested space was the development of a public health elective for third-year medical students. The 2011 elective was designed on the basis of feedback from third-year respondents on the factors that they take into consideration when they make an elective choice. Despite early positive signs of interest, no students chose the one-month public health elective. Subsequent review of the actual choices suggested that the one-month time period was a barrier. The 2012 elective was shortened to meet this perceived need for a shorter public health experience. Six students participated in the public health elective. Students' extension of their elective period and their feedback of the elective experience suggest that the elective was an eye opener to both the work of non-governmental organisations in health care and to the communities in the inner city.

8.3 My living theory of practice: a world with meaning

8.3.1 Introduction

Chapter 3 (Section 3.1.1.3) introduced my theoretical framework of action research living theory:

As we practise, we observe what we do and reflect on it. We make sense of what we are doing through researching it. We gather data and generate evidence to support our claims that we know what we are doing and why we are doing it (our theories of practice), and we test these knowledge claims for their validity through the critical feedback of others. These theories are our living theories. (Whitehead & McNiff, 2006:32)

The process of theorising from practice involves reviewing the findings through one or more conceptual or theoretical positions in order to make sense of the findings. As the bulk of the findings has been generated through qualitative methods I have been guided by the four options that qualitative data offer. Grbich (2007:185-6) describes the options:

The first relates to your pre-chosen theoretical positions which will drive your research and against which you will place your findings (theory direction). The second relates to methodological underpinnings which may constitute the orientation and processes of data collection: for example, the grounded theory approach has elements of symbolic interactionist theory, which may lead you toward this or some related form of interactive theorising...The third option, researcher choice, allows you to call upon the huge variety of conceptual models and theoretical ideas that exist across all available disciplines in order to provide a more abstract explanation of your findings. The fourth option, theory minimisation, lies in the postmodern tradition where minimal interpretation but maximum display of data occurs so that the reader can get close to the participants' experiences and make their own decisions based on their own life experiences.

I have chosen the option of the theory minimisation and have used a constructivist grounded approach in my action research by reading and returning to the literature and the data repeatedly. In the process of studying my educational practice and the context of that practice I have reframed my practice in the light of my values of care and agency, have critically reflected on my educational practice and my context and have generated a living theory of my practice.

In the construction of my living theory I have made use of thematic analysis and recurring constructs, some of which I have signposted in the text through the use of the compass icon. These compass icons map out a cognitive map of my emerging understanding of my educational practice and the context of that practice. As a result, this cognitive map is a representation of an explanatory framework rather than a final interpretation of the research findings. The lack of closure is typical of a postmodern tradition and is aligned to my theoretical framework of action research living theory that theorises the contradictory nature of life (Whitehead & McNiff, 2006:34).

It was not possible for me to develop a living theory of practice that was not dominated by a living theory of my practice context. Regehr (2010:35) uses the construct of entanglement that is found in quantum physics that:

describes a phenomenon whereby two or more objects are linked together so that one object can no longer be adequately described without full mention of its counterpart(s), even though the individual objects may be spatially separated.

Stated otherwise, I had to look over my own conceptual horizon of practice to see the bigger picture of my practice context and in seeing the bigger picture I understand my educational practice better.

In the process I have acted as an agent and constructed a world with meaning (Bourdieu, 1984:2). I have used my living theory to make sense of my research findings, and used my research findings to construct my living theory so that “the interplay helps us to produce theoretically structured descriptions of the empirical world that are both meaningful and useful” (Ragin, as cited in Ten Have, 2004:9).

This world with meaning “assumes an obdurate, yet ever-changing world but recognises diverse local worlds and multiple realities, and addresses how people’s actions affect their local and larger worlds” (Charmaz, 2006:132).

This world has both tensions that exert pressure on seemingly opposing choices and connections that form cohesive bonds. In this chapter I look both in and out from this

world of meaning that I have created and recognise a range of conceptual horizons. Finally I look inward by (re)considering my agency and transformational leadership to express my care in a world with meaning.

But creating new knowledge and new ways of knowing was not possible without first disrupting the *status quo*.

8.3.2 Disrupting the *status quo*

One reason for disrupting the epistemological *status quo* was to transform our public health undergraduate curriculum blueprint into one that represents our values. The reasons for the *status quo* was a historical legacy where the “traditions, priorities, and values of the faculty in that profession” (Frenk *et al.*, 2010:1951) had remained unexamined and unchallenged until now. The examination of our curriculum and our practice is aligned with a renewed interest in public health in the undergraduate medical curriculum and a call to challenge the *status quo* (Frenk *et al.*, 2010:195; Johnson, Donovan & Parboosingh, 2008:417). Some of the change is brought about through research, which Flexner championed because research encourages scepticism of orthodoxy (Nora, 2010:S47) and educational research challenges educational orthodoxy.

One way to challenge educational orthodoxy is through subversive means, as suggested by one of the international experts in this research: “*You have to be prepared to unbelieve that this is a subversive activity that your purpose is to subvert the existing curriculum which means a certain amount of discretion, a certain amount of interesting reading, a certain amount of seeking forgiveness rather than permission and a certain thick skin*” (IE2). The reference to “purpose” in this statement suggests a substantive life-long commitment rather than a quick-fix, one-size-fits-all solution. Frenk *et al.* (2010:1924) emphasise the time needed to effect transformation:

Effective education builds each level on the previous one. As a valued outcome, transformative learning involves three fundamental shifts: from fact memorisation to searching, analysis, and synthesis of information for decision making; from seeking professional credentials to achieving core competencies for effective teamwork in health systems; and from non-critical adoption of

educational models to creative adaptation of global resources to address local priorities.

While the first two shifts refer to graduate behaviour, the last shift of “creative adaptation of global resources to address local priorities” is directed at academic staff to critically rethink their current educational models. This tension to shift from our position of complacency to one that requires us to revisit, rethink and transform our thinking around public health in the undergraduate medical curriculum is only the first thread in a web of tension.

8.3.3 The web of tension

My living theory of practice is subject to a number of external and historical tensions. And “when everything interacts, nothing is simple” (Regehr, 2010:36). The one tension that has been introduced in this chapter – the adaptation of global educational resources to address local educational needs – is not particular to public health education. In contrast, the 1915 split between public health and medicine represents a unique tension that underlies our current practice contexts – even if the effects of that split are not acknowledged. Other historical tensions are the dual focus of science (favoured by Welch) and practice (favoured by Rose) and the differences between the USA model (knowledge of public health hygiene and leadership) and the United Kingdom/European model (administration) and the consequences of making these choices in our models of public health.

This research of my practice, and the context of my practice have revealed several contemporary tensions. Perhaps the tension with the most divergent endpoints is the multiple concurrent understanding of public health that shattered the implicit assumption that we understand public health in the same way. This multiple concurrent understanding poses a silent question regarding our educational practice: To what extent is it important that we all understand public health in the same way? The response to the question will affect even our smallest educational interaction with medical students.

Our educational intentions of including public health in the medical curriculum harbour more tension. This research revealed that there are conflicting epistemological and ontological intentions at an institutional level when these are compared to the intentions

described in the draft national public health competencies for medical students. The focus on competency, which is individual competency, (Lingard, 2009:626) can be considered problematic for the construction of knowledge about public health as this knowledge is often socially constructed. Public health knowledge and practice is better played as a team sport, not an individual event. Related to this tension around an individual – versus a group – competency approach, is the acknowledgment that some competencies need time to develop (Hodges, 2010:S43). So which public health competencies will need time to develop and more importantly, how can these competencies be achieved with our strategy of a golden thread approach?

The strategies to include public health in the medical curriculum exposed a network of tensions between adopting formal strategies and/or making use of a number of personal strategies for inclusion; strategies for the facilitation of learning or strategies of engagement; and the most prominent tension of opting for a block or thread approach for the inclusion of public health in the medical curriculum.

The decision of including public health in either a block or thread approach has substantial consequences. The advantages and disadvantages of either a thread or block approach can be listed but ultimately each choice has some intended and unintended consequences. Those who opt for a separate block approach experience isolation that “accentuates the challenge faced by medical educators in trying to teach public health effectively within a medical culture that values acute care of individual patients and their families over population-based health protection, health promotion, and disease prevention” (Tyler *et al.*, 2009:1307). Conversely, those who opt for an integrated thread approach struggle to retain the profile of public health within the clinical context.

A final unavoidable tension that was identified is the tension between global versus local relevance of our educational endeavours.

This web of tensions in my living theory should not automatically be viewed as negative but rather as part of the fabric of practice that is inescapably complex. Because:

we need to address head-on the inconsistencies, irregularities, and downright messiness of the empirical world – not scrub it clean and dress it up for a special occasion of a presentation or a publication (Clarke, 2005:15).

This fabric of practice is also inescapably connected.

8.3.4 Points of connection

Compass icons have marked the connections throughout the text of the findings chapters. The analogy of a compass is popular in public health as the four cardinal values of public health (relevance, quality, cost-effectiveness and equity) are under tension to meet the needs of individuals and populations at the intersection of the four values (Boelen, 1993:4). The choices that are made need to be “technically appropriate and socially acceptable compromises among all values at the same time” (Boelen, 1993:5). Similarly the points of connection in this research signify the points where the tension is at its lowest.

Two connective points – public health is ubiquitous and public health is part of the indivisible part of the spectrum of medicine – are perhaps at the core of the connections. Unfortunately public health also happens to be part of the spectrum of medicine that is invisible to the medical students. And where public health was not already invisible some thought it would be beneficial to re-label public health or hide it in the curriculum.

The connection of shining a light on public health with the use of an experiential learning strategy also partially meets the agreement that our educational efforts in public health need to be exciting.

These points of connection, although only briefly mentioned here, are key as they represent ideas and opportunities to overcome the conceptual horizon of public health. The construct of a conceptual horizon that was coined by Woodward (1994:390) was reproduced through a number of conceptual horizons identified in this living theory.

8.3.5 Conceptual horizons

This living theory has layer upon layer of conceptual horizons, the first conceptual horizon being the medical students' inability to see the population or public health perspective and the related inability to identify a public health specialist (Tyler *et al.*, 2009:1310). In this research the multiple concurrent understanding of public health could be interpreted as students not seeing public health clearly – or the counter argument that if public health is ubiquitous, multiple perspectives are the only way to communicate an authentic picture of public health. This multiple concurrent understanding of what public health is forms the most complex conceptual horizon in this research. The clinician's own conceptual horizon of his or her own undergraduate experience of public health (typically visits to a local sewerage farm) versus the current ecological approach to population health contributes to our multiple concurrent understanding.

The lack of a clear boundary between public health and medicine cannot be conceptualised as a conceptual horizon but it does, instead, suggest a shifting, undefined conceptual mirage. Similarly the construct that public health is ubiquitous forms a conceptual mirage of its own: how can we know when something is public health if a trained eye can see it everywhere?

The SHSPH's current immobility and lack of engagement with the undergraduate medical curriculum was challenged by our confronting our own conceptual horizons. The first of these conceptual horizons was our curricular intentions. In this research we challenged the implicit assumptions of our intentions and aspirations and reached a deeper understanding of our epistemological and ontological intentions. In turn, these curricular intentions challenge the conceptual horizons created by the discourse of competencies. Our emphasis on the relevance of public health to clinical practice is at odds with some of the inclusions in the proposed competency framework. One example is the inclusion of the impact of climate change on populations, which is over the conceptual horizon of the average medical practitioner.

A second conceptual horizon in our practice was the inability to see that aspects of public health are actually included in the first six months of study. We did not regard the first six

months as part of 'our curriculum' and only became aware of some public health inclusions through the feedback from medical students regarding the adequacy of their educational experience. In addition the notion of facilitating learning about a future reality inserted a time perspective about our practice that did not previously exist.

The SHSPH discussions of optimal strategies for the facilitation of learning about public health in our medical curriculum is characterised by a paradigm shift needed to overcome our conceptual horizons of what is possible. New imaginative and innovative strategies such as the use of social media and the design of a public health elective for our medical students challenge our acceptance of educational orthodoxy. Our strategies to engage the School of Medicine challenge our previous malaise with regard to our involvement in the undergraduate medical curriculum.

The results of my own innovative practice of designing and presenting a public health elective for the third-year medical students challenged the notion – the conceptual horizon – of medical students' lack of interest.

This research suggests that in contrast with the orthodox thinking that public health is over the conceptual horizon of medical students, public health is an 'eye opener' to the world of medicine.

8.3.6 Agency

The aspects of my educational practice in which my value of agency was denied has been described (Chapter 3, Section 3.2.4). This denial of my value of agency provided the impetus for this practitioner research and has made it possible to construct my living theory of a world with meaning. This meaning has been constructed by my educational practice and by understanding the context of that practice more fully. My values of agency and care have been more fully realised in this process, as my conversations with others were legitimate research activities.

Exercising my sense of agency is part of professional development and citizenship (Frenk *et al.*, 2010:1946). By realising my value of agency I have contributed to my professional

development as an accountable practitioner and can claim to be a citizen in the world of public health.

The consequences of a lack of agency result in “anxiety, demoralization, and sense of loss of control” (Berwick & Finkelstein, 2010:S63). By exercising my sense of agency in not only understanding my practice but more importantly in the context of my practice, I have lived out my value of agency. I claim to have had an educational influence on my own learning, the learning of my colleagues and the medical students involved. By extension I have turned back the feelings of demoralisation and helplessness in my educational practice.

Finally, agency is also linked to leadership (Federmann, as cited in Maeshiro, 2008:320). If agency is a prerequisite for leadership then an educational practice context that does not promote agency does not promote leadership.

8.3.7 Transformational leadership

This research has allowed me to reflect on: ‘How do I model characteristics of transformational educational leadership in public health with both my students and colleagues?’ By engaging in activities – both constructive and possibly subversive – to construct meaning of my educational practice and the context of that practice I have lived my value of agency. By extension this action research is evidence of my leadership practice and has been personally transformative. I have exercised the right to be concerned about my practice, the self-determination to be able to do something about it and finally the freedom to involve others in caring. The freedom to involve others was the subject of a second reflection research question: ‘How can I influence my colleagues’ teaching practice to advance the value of public health in the medical curriculum?’

This question was not fully explored during the course of this research as the research questions about our understanding of public health and our intentions with the inclusion of public health in the medical curriculum dominated this research. Regehr (2010:31) argues for the “imperative of simplicity” to be replaced by the “imperative of representing complexity” in health professions education, as the effect of our actions “can bloom into

unpredictability at a moment's notice" (2010:35). In the same way the focus on the first two research questions bloomed into unexpected and unplanned actions.

On the basis of the findings in this research, the question on influencing my colleagues' teaching practice should be rephrased; it should not be I who influence the teaching practice of others, but it is I who envision an approach of the ways in which we influence each other's teaching practice. If I have any claim to role modelling leadership qualities it would be the claim that this research is evidence of my "enthusiasm for practice and teaching, and an uncompromising quest for excellence" (Cruess, Cruess & Steinert, 2008:718). In particular, my practice is evidence that "public health education needs to be participative and delivered with passion" (Gillam & Maudsley, 2009:129).

This practitioner research has yielded "knowledge about practice that does not arise from daily practice alone" (Dinkelman, 2003:9). Engaging with the bigger picture of public health, the bigger picture of our educational intentions and the context of that practice has allowed me to theorise my practice as a practitioner researcher.

8.4 Potential significance of this research

This research aims to contribute to the deeper theoretical, philosophical and conceptual understanding of the inclusion of public health in the medical curriculum. The complexity of public health and the complexity of a public health educator's practice and knowledge of that practice holds potential for learning by others who also find themselves on the fringe of other curricula. It is this feature of action research – the capacity to influence learning in others in the interest of good social order – that represents the significance of this work.

The activities and the findings of this practitioner research allow others who find themselves with similar contradictions in their practice to reconsider their practice and the contexts of that practice in a new light. Chapter 1 (Section 1.3.4) outlined the potential broader theoretical and practical significance of this research that is a result of the plural structure as described by Winter and Burroughs (1989:62-5). The plural structure allows for others to construct their own meaning and significance of the research for their practice. By producing a living theory of a world with meaning I have invited others to enter my practice and my practice context and reframe their own practice in meaningful ways.

One practical contribution of this research has been the creation of the big picture of public health and the facilitation of public health in the undergraduate medical curriculum at the University of Pretoria.

This research has also made small contributions to the body of knowledge of educational practice in public health in response to the “dearth of public health educational research (and unanswered questions) [which is] an issue of international concern” (Gillam & Maudsley, 2009:130).

8.5 Limitations and validation

8.5.1 Limitations

The delineations and methodological limitations of this research were described in detail in Chapter 4, Section 4.9. The steps taken to ensure the quality of the data through both qualitative and quantitative methods was also described (Chapter 4, Sections 4.8.1 and 4.8.2). In addition to those steps I have made use of a validation group to ensure the overall or ‘meta’ quality of the research. The rationale and data-gathering steps during the validation group meetings are discussed in Chapter 4 (Section 4.8.3.2).

8.5.2 Validation

As the research objectives are those of understanding and practice, I have developed standards of judgement that have contributed to the progression of my personal understanding and practice of public health education. Such personal development has enabled me to be publicly accountable and has provided me with solid grounds “for rejecting personal anecdotes as a basis for either policy or practice” (Snow, 2001:9).

The group met on 10 October 2013 and despite the planned activities of agreeing on the values and accompanying standards of judgement, the group convened as a *lekgotla*²².

²² A meeting place for village assemblies, court cases, and meetings of village leaders.

Sitting on the floor we discussed the value of the research and the effect that the research has had on myself, my colleagues and the teaching of public health in the undergraduate medical curriculum. As this activity took place beyond the ethically approved three-year limit for this study no findings can be presented here.

8.6 Suggestions for further research and practice

Several avenues for further action and research on the effects of that action have suggested themselves to me during the course of this research.

First is the use of facilitation of learning about public health through the use of educational strategies such as the Liverpool Seven Pointers (Gillam & Maudsley, 2009:129) that can promote the big picture of public health and promote coherence.

The proposed public health competency framework and the implementation of such a competency framework is a rich seam for future research.

A future project could be to engage with the block chairs to review the description of public health in the block books and in particular the “verbs used in the detailed objectives, because they reflect the level of understanding and anticipated action” (Johnson, Donovan & Parboosingh, 2008:417).

Of personal interest is the development of and research on the strategy of using social media to not only facilitate learning about public health but, more importantly, to develop a public health community of practice of academic staff, postgraduate public health students and medical students. This development of a community of practice can include the development of student interest groups that have been used as a strategy to motivate interest in public health (Jang, Alston, Tyler, Hau Donovan, Johnson, Shore & Shahin, 2013:1009).

Finally the exploration of developing a public health educators’ network in Africa holds substantial potential: for developing a community of practice; engendering collegiality,

sharing information, resources and innovative practice; and to engaging in meaningful work on our educational influence in public health education.

8.7 Concluding remarks

This chapter has provided an overview of the research findings as an axis around which I have constructed my living theory of a world with meaning. One focus of my living theory has been an understanding of the context of my practice as “context is the irreducible covariate” in a complex world (Howell, as cited in Regehr, 2010:36).

By my disrupting the *status quo* my educational practice and the context of my practice was fractured. This disruption revealed a web of interconnected thinking and practice that simultaneously causes tension and offers points of connection. Within this world with meaning several conceptual horizons were identified and in some cases overcome. I can claim a contribution to overcoming our conceptual horizons by exercising my value of agency to ensure care in my practice.

This chapter outlined the potential for others to find significance in this research and described the limitations of the research. The steps taken to ensure the validity of the research and the articulated standards of judgment were described prior to the suggestions for further research and practice.

While this is the end of my thesis, Chapter 9: The Compass Rose, is a meta-reflection chapter that sketches out my learning and my professional development.

9 CHAPTER 9: THE COMPASS ROSE

9.1 Introduction

This chapter is a culmination of my scholarly reflections and is a meta-reflective perspective that looks back on my professional development journey, as a result of not only this practitioner research but also the participation in a medical education fellowship and a peer-led doctoral support group.

One of the intentions of this research was to focus on my educational practice which occurs within, and in response to, wider contexts (Pithouse, as cited in Pithouse, Mitchell & Moletsane, 2009:17). In short, the understanding of my educational practice cannot exist without the understanding of my professional context. The preceding chapters have therefore focused on my developing a deeper understanding of my professional context and transformed professional practice. I have maintained a postmodern position in these chapters and have stepped back, by means of critical reflection, so that my voice was only one of the “polyphonic display of the voices of the researched” (Grbich, 2007:19). In this chapter there is only one voice that reflects back on my professional journey.

I have chosen a compass rose as a metaphor for this chapter. The reason for my choice is the values of care and agency in my educational practice that serve as my true north and have made my professional development journey possible. The meta-reflections of my professional development in this chapter form part of my double helix of action research described in Chapter 4 (Section 4.3).

The Herrmann Brain Dominance Instrument (HBDI[®]) that was introduced in Chapter 3 (Section 3.2.2) is used as a framework in this chapter and acts as the weathervane for the four main directions of my professional development journey.

9.2 Looking North: my intellectual self

My intellectual self values logical and rational processes and in my professional development journey it has been this research opportunity to explore an intellectual puzzle

that has met my need for analytical and fact-based thinking (Herrmann International Africa, 2013).

The opportunity for cooperative work and cooperative research with, among others, one of our registrars and our second-year medical students is typical of a community of practice. Participating in this, and other, communities of practice formed one of my professional activities on a path to becoming a scholarly practitioner.

The central pivot in my professional development as a scholarly practitioner have been my critical readers who have ensured that “the production of new knowledge [was] regulated by measuring it against existing scholarship through a process of peer review, rather than by the extent to which it meets the needs of interests external to the field” (Menand, as cited in Horton, 2010: 1876-7). This community of practice has improved the scholarly merit and practical value of this research. By holding myself accountable to this group I argue that I have held myself accountable to an implicit group of readers: all my participants in this research. I have tried to represent the experiences and the opinions of the medical students, the block chairs, the SHSPH workshop participants and all the others as authentically as I could. I also propose that the living theory of my educational practice is catholic enough to provide a home for all our individual theories of public health in our medical curriculum. But this thesis is a written version of part of my practice and as by creating a structure for this thesis I am mindful that a structure can simultaneously alienate or exclude others so I have invited the reader to a dialogue from the beginning and have left unresolved tension in the text where new interpretations and new meaning can be constructed.

A major contributor to my intellectual professional development is the Southern African FAIMER Regional Institute (SAFRI) family (Figure 9-1) who has provided me a home for scholarly research and a deeper understanding of my professional practice.



Figure 9-1: My connected SAFRI family [Used with permission]

This deeper understanding of practice has emerged as exploring the construct of being an educator in the health sciences. Currently we are the ‘interested few’ among the ‘uninterested many’ but within this current reality is the beginning of a future reality as the scholarship of health sciences education is making connections quietly over Africa. Flexner would have approved. He might even have called us “scholarly in spirit and method, [and] prove the purveyors and distributors through whom new ideas are harmonised and made current. They preserve balance and make connections” (Flexner, as cited in Riggs, 2010:1670).

I have been able to reframe my practice through my participation in this SAFRI community of practice. This reframing was inextricably linked to the context of health sciences education and the “active engagement in the activities of the [health sciences educator] community” (Mann, 2011:60). My SAFRI fellowship experience can be viewed as part of my claim to knowledge and a legitimisation of my role as a health sciences educator.

9.3 Looking South: my safekeeping self

All the sequential and organised activities that together shaped my professional development during this doctoral process form a parallel action research spiral (Chapter 4, Section 4.3). This attention to procedural requirements forms part of my safekeeping self.

As part of the doctoral process, the Faculty of Education at the University of Pretoria outlines a route for the successful and timely completion of studies. This route includes at least 20 contact support sessions (days) as part of the academic programme. The oral defence of protocol (completed the 24 February 2010) and ethical approval process (completed the 9 July 2010) also form part of the envisaged doctoral route. I also complied with the university-wide requirement of quarterly reports to my study promoter (Section 9.5).

This compliance with the university's procedures represents my desire to become part of the academic community and to show familiarity and knowledge of the academic conventions. My claims to knowledge therefore extend to a claim of knowledge of being a competent academic.

Part of the academic process is making my claims to knowledge public and establishing their validity through the critical feedback of others (Whitehead & McNiff, 2006:32). I have invited the comments of my peers by presenting aspects of my research as academic outputs at conferences as oral (Table 9-1) and poster (Table 9-2) presentations.

Table 9-1: Oral presentations

Date	Conference details
30 Nov - 2 Dec 2011	Colouring in the blank spaces of electives for medical students: a brush with community. Wolvaardt JE, Burch V, Cameron D, Du Toit PH Higher Education Learning and Teaching Association of Southern Africa (HELTASA), Nelson Mandela Metropolitan University (NMMU), Port Elizabeth
28-30 Nov 2012	Hot on the trail of a public health elective in medicine

Date	Conference details
27-29 June 2013	Wolvaardt JE, Burch V, Cameron D, Du Toit PH Higher Education Learning and Teaching Association of Southern Africa (HELTASA), Stellenbosch University, Stellenbosch ‘Liking’ public health: exploring social media for teaching public health Wolvaardt JE, Majake L, Du Toit PH The 6 th National Conference of the South African Association of Health Educationalists (SAAHE), Durban

Table 9-2: Poster presentations

Date	Conference details
21-23 June 2012	Breaking bad news: public health electives for medical students Wolvaardt JE, Cameron D, Burch V Fifth National Conference of South African Association of Health Educationalists (SAAHE), Bloemfontein

A traditional convention in academia is publication in a peer-reviewed journal. For a doctoral degree the Faculty of Education at the University of Pretoria the regulations require the submission of at least one article for publication. I have submitted three articles to international journals (Table 9-3) in order to meet this requirement and to add to the discursive shifts in medical education that Hodges (2010, S43) refers to.

Table 9-3: Submitted articles

Date	Article title, author and journal details
Submitted: 5 January 2011	The modern game of cricket: lessons from the boundary for medical education Wolvaardt JE , Lindeque G, Du Toit, PH Medical Education
Submitted: 11 October 2012 Published: May 2013	The bottom line: Tailoring a public health elective to students’ needs Wolvaardt JE, Burch V, Cameron DC, Du Toit PH African Journal for Health Professions Education

Date	Article title, author and journal details
Submitted: November 2013	Balancing the educational choices in the decision making of a dean of medicine: fission or fusion? Wolvaardt JE , Lindeque G, Du Toit PH Medical Teacher

9.4 Looking East: my emotive self

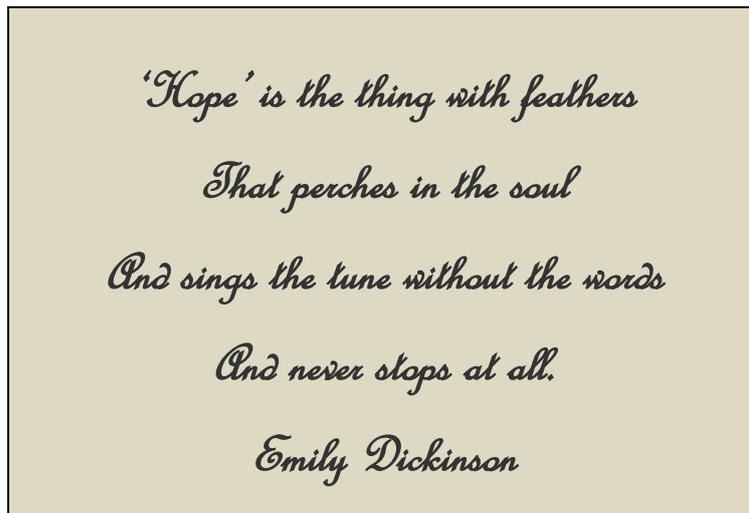
Quadrant C captures the expressive, sensory elements that include my inter-personal (and intra-personal), feeling-based, kinaesthetic and emotive thinking. The fulfilment of the needs of my emotive self was in the creation and participation in our peer-led doctoral support group. The defining characteristic of this group is the inclusionality that Whitehead (2008:4) describes as a rationally dynamic process that is connective, reflexive and co-creative.

The embodied expression of our values of scholarship and our energising affirmation of each member's contribution to not only her own professional development but also each others' professional development is the immeasurable worth of our connected practice (Our peer-led support group in Figure 9-2).



Figure 9-2: Hanlie, Liz, Mariana and Karien [Used with permission]

The celebration of each success and the reframing of each setback met my need for feeling-based and emotive thinking. It was through our connected experiences in our disparate (and sometimes desperate) experiences that I could recognise my own experiences. Our metaphor of the heart as a bird emphasises the inseparability of our experiential base (Box 9-1).

Box 9-1: An homage to our metaphor**9.5 Looking West: my experimental self**

My experimental self represents my preference for holistic, intuitive, integrating and synthesising thought that is typical of quadrant D thinking.

The opportunity to both meet the universities requirement for an oral defence of protocol and quarterly progress reports (quadrant B thinking) and to simultaneously challenge the dominance of academic text (quadrant D thinking) was embraced. My narration of the Disney® video clip (Flamingos from the Camille Saint-Saens' Carnival of the Animals from Fantasia, 2000) as a summary of the oral defence of protocol is a typical inclusion of my preference for visual imaginative approaches in my educational practice (Figure 9-3).



Figure 9-3: The 'purple public health flamingo' from the Disney® video clip

I have recognised multiple intelligences (Gardner, 1993) in my attempts to use media other than written reports for the required quarterly reports. The first quarterly report was in a newsletter format (Figure 9-4), but more imaginative methods were soon put into play as the content was not challenging (what progress had been made against the plan, what I had learned and how etc.) but the conceptualising the delivery was.

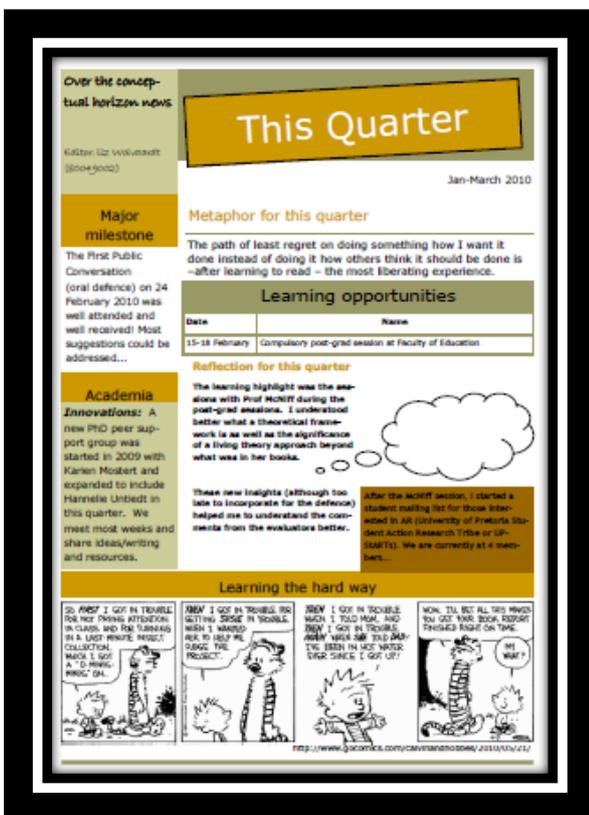


Figure 9-4: Quarterly report newsletter

Other quarterly reports included a set of origami crayfish (Figure 9-5), nine postcards (Figure 9-6); a message in the bottle; a puzzle; a set of printed mugs; a child's note book; an advent calendar and a PhD comic strip collection.



Figure 9-5: Constructivism crayfish

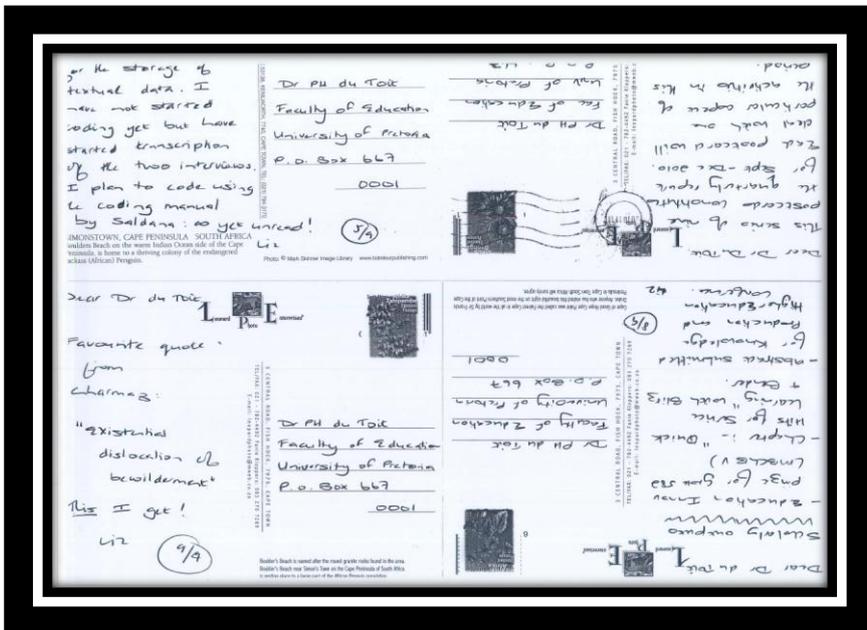


Figure 9-6: Some seaside postcards

The common thread throughout the reports was the invitation by the reader to engage with the medium of the message as well as the message itself. The element of playfulness and fun are characteristic of quadrant D thinking while the sensory elements are typical of quadrant C thinking. The ability to simultaneously conform to the institutional requirement of a quarterly report (quadrant B thinking) and challenge the notion of a reporting requirement in a relationship based on trust (quadrant C thinking) was irresistible to me.

One of the quarterly reports made use of 'xtranormal' an online programme that allows the creator to write the script, design the setting, animate the participants and then render the 'film' in animated form. This medium was the first time that I used only oral and visual material unlike the previous reports that always included text with either visual or tactile material (Figure 9-7).

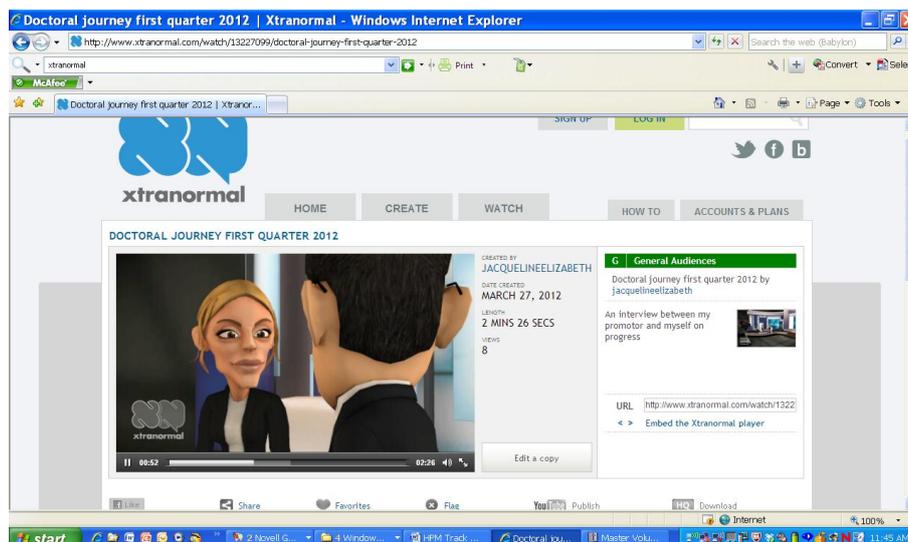


Figure 9-7: Screenshot of the xtranormal movie

This reporting of my educational practice is a representation of my growing sense of agency in my educational and leadership practice.

9.6 Conclusion

This chapter has outlined my professional development journey during this research and the influences of others on my thinking and, by extension, my educational practice. The role of my doctoral promoter and my critical readers has shaped my professional scholarly development while the SAFRI family has introduced me to the fellowship of health

sciences or medical educators. Our peer-led doctoral support group provided a home for collegiality and scholarship that is energy-giving and co-creative.

This meta-reflection chapter ends by looking back at the use of metaphors in the text as these metaphors are inextricably also my metaphors. And the stories that the metaphors tell are my stories.

The first metaphor is a battle metaphor that found expression in words such as ‘well-entrenched’, ‘arsenal’, ‘strategies’, ‘contested’, ‘boundaries’ and ‘breach’. But that is because the start of this practitioner research started with a skirmish. This extract is the conclusion from a memo that I wrote to the SHSPH block chair in February 2008 where I argued that a block I was involved in (block 16) needed to be transformed: *“But when one considers that it is apparently the worst rated block of under-graduate MBChB studies it is very unrewarding and with a sense of fatalism that one has to stand in front of the class with the usual programme/lectures”*. No changes were made using this route but the battle was won through ‘crossing over’ to the Department of Family Medicine during the Postgraduate Certificate in Higher Education (PGCHE). The complete transformation of this worst-rated block into a service-learning model with Prof. Julia Blitz from Family Medicine allowed us to change the rules of engagement and subvert the academic power in a similar fashion to what the international expert suggested (Chapter 7, Section 7.2.1). As a result of these changes I could hold myself accountable for my transformed educational practice in block 16. But I could not hold myself accountable for the situating of that practice within the facilitation of learning about public health in the medical curriculum – until now.

The second metaphor is that of hurt. For example ‘loss’, ‘rift’, ‘split’ and ‘reconciliation’ can be found in the text. An additional narrative from the SHSPH minutes of the undergraduate meetings also describes ‘exclusion’ and ‘not being welcome’ amongst others. The narrative of hurt that is in the text is possibly a primordial echo of the 1915 split between public health and medicine but is also a reflection of my own personal landscape of hurt and loss of agency(Chapter 3, Section 3.2.1) – until now.

This practitioner research and my concurrent professional development as an educator have allowed me not only to scratch an intellectual itch but to transform my professional

identity beyond my educational practice. I have created meaning of this professional identity within my personal and professional context and have transformed my educational practice by living my values of agency and care in practice. In the construction of this knowledge I have reflected on how my beliefs are socially constructed and how these beliefs impact on this research (Grbich, 2007:10).

“In the writing of every sentence I have felt the burden of the meaning of the whole bearing down on me but in the writing I did not know the whole” (Winter & Burroughs, 1989: 114). But by the end of the writing I have constructed meaning of my educational practice and professional identity and by living my values of care and agency have looked over my own conceptual horizons in the search of the whole.



10 List of references

- Albanese, MA, Mejicano, G, Mullan, P, Kokotailo, P & Gruppen, L. 2008. Defining characteristics of educational competencies. *Medical Education*, 42, 248-55.
- Allan, J, Barwick, TA, Cashman, S, Cawley, JF, Day, C, Douglass, CW, Evans, CH, Garr, DR, Maeshiro, R & McCarthy, RL. 2004. Clinical prevention and population health: Curriculum framework for health professions. *American Journal of Preventive Medicine*, 27, 471-76.
- Anderson, KC, Slatnik, MA, Pereira, I, Cheung, E, Xu, K & Brewer, TF. 2012. Are we there yet? Preparing Canadian medical students for global health electives. *Academic Medicine*, 87, 206-09.
- Anderson, MB & Kanter, SL. 2010. Medical education in the United States and Canada, 2010. *Academic Medicine*, 85, S2-S18.
- Association of Faculties of Medicine of Canada (AFMC). 2009. An environmental scan of best practices in public health undergraduate medical education. Nevis Consulting Group.
- Australian Medical Council. 2012. *Accreditation standards for primary medical education providers and their program of study and graduate outcome statements* [Online]. Australian Medical Council. Available from: <http://www.amc.org.au/index.php/component/content/article/91-news/615-accred-review-dec-21> [Accessed 10 October 2013].
- Barzansky, B. 2010. Abraham Flexner and the era of medical education reform. *Academic Medicine*, 85, S19-S25.
- Baumgartner, L. 2001. An update on transformational learning. In: Merriam, SB (Ed.) *The New Update on Adult Learning Theory*. San Francisco: Jossey-Bass, 15-24.
- Beitsch, LM, Brooks, RG, Glasser, JH & Coble (Jr), YD. 2005. The medicine and public health initiative: Ten years later. *American Journal of Preventive Medicine*, 29, 149-53.
- Bender, CJG, Daniels, P, Lazarus, J, Naude, L & Sattar, K. 2006. *Service-learning in the curriculum. A resource for higher education institutions*. Pretoria: Council on Higher Education.
- Berwick, DM & Finkelstein, JA. 2010. Preparing medical students for the continual improvement of health and health care: Abraham Flexner and the new "public interest". *Academic Medicine*, 85, S56-S65.
- Beylefeld, A. 2011. Action research and curriculum transformation. In: Bitzer, E & Botha, N (Eds.) *Curriculum inquiry in South African higher education: Some scholarly affirmations and challenges*. Stellenbosch: Sun Media. 261-83.
- Bligh, J & Brice, J. 2008. What is the value of good medical education research? *Medical Education*, 42, 652-53.
- Boelen, C. 1993. The five-star doctor. *Changing Medical Education and Medical Practice*, 3, 1-12.
- Boelen, C & Woollard, B. 2009. Social accountability and accreditation: A new frontier for educational institutions. *Medical Education*, 43, 887-94.
- Bourdieu, P. 1984. *Distinction: A social critique of the judgement of taste*. Cambridge, MA: Harvard University Press.
- Buckner, AV, Ndjakani, YD, Banks, B & Blumenthal, DS. 2010. Using service-learning to teach community health: The Morehouse School of Medicine Community Health Course. *Academic Medicine*, 85, 1645-51.

- Bullough (Jr), RV & Pinnegar, SE. 2004. Thinking about the thinking about self-study: An analysis of eight chapters. In: Loughran, JJ, Hamilton, ML, Laboskey, VK & Russell, T (Eds.) *International handbook of self-study of teaching and teacher education Practices*. Springer. 313-42.
- Calhoun, JG, Ramiah, K, Weist, EM & Shortell, SM. 2008. Development of a core competency model for the master of public health degree. *Journal Information*, 98, 1598-607.
- Cameron, D, Wolvaardt, L, Van Rooyen, M, Hugo, J, Blitz, J & Bergh, A-M. 2011. Medical student participation in community-based experiential learning: Reflections from first exposure to making the diagnosis. *South African Family Practice*, 53, 373-79.
- Carney, J & Hackett, R. 2008. Community-academic partnerships: A "community-first" model to teach public health. *Education for Health*, 21, 166-71.
- Charmaz, K. 2006. *Constructing grounded theory: A practical guide through qualitative analysis*. Thousand Oaks, Calif.: Sage Publications Ltd.
- Clarke, A. 2005. *Situational analysis: Grounded theory after the postmodern turn*. Thousand Oaks, Calif.: Sage Publications Ltd.
- Collins, JW & O' Brien, NP (Eds). 2011. *The Greenwood dictionary of education (Second ed.)*. Santa Barbara, Calif.: Greenwood Publishing Group.
- Côté, L & Leclère, H. 2000. How clinical teachers perceive the doctor-patient relationship and themselves as role models. *Academic Medicine*, 75, 1117-24.
- Creswell, JW. 2007. *Qualitative inquiry and research design: Choosing among five approaches*. Thousand Oaks, Calif.: Sage Publications Ltd.
- Creswell, JW. 2009. *Research design: Qualitative, quantitative and mixed methods approaches*. Thousand Oaks, Calif.: Sage Publications Ltd.
- Cruess, SR, Cruess, RL & Steinert, Y. 2008. Role modelling – making the most of a powerful teaching strategy. *British Medical Journal*, 336, 718-21.
- Dadds, M & Hart, S. 2001. *Doing practitioner research differently*. London: Routledge.
- De Boer, A-L, Bothma, T & Du Toit, P. 2011. Enhancing information literacy through the application of whole brain strategies. *Libri*, 61, 67-75.
- De Boer, A-L, Steyn, T & Du Toit, P. 2001. A whole brain approach to teaching and learning in higher education. *South African Journal of Higher Education*, 15, 185-93.
- De Haan, M, Dennill, K & Vasuthevan, S. 2005. *The health of southern Africa*. Cape Town: Juta.
- Denscombe, M. 2010. *The good research guide: For small-scale social research projects*. Maidenhead: Open University Press.
- Denzin, NK & Lincoln, YS. 2008. *Collecting and interpreting qualitative materials*. Thousand Oaks, Calif.: Sage Publications Ltd.
- Dinkelman, T. 2003. Self-study in teacher education: A means and ends tool for promoting reflective teaching. *Journal of Teacher Education*, 54, 6-18.
- Dobson, S, Voyer, S & Regehr, G. 2012. Agency and activism: Rethinking health advocacy in the medical profession. *Academic Medicine*, 87, 1161-64.
- Dochy, F, Gijbels, D, Segers, M & Van Den Bossche, P. 2011. *Theories of learning for the workplace: Building blocks for training and professional development programs*. London: Routledge.
- Driessen, E, Van Tartwijk, J & Dornan, T. 2008. The self critical doctor: Helping students become more reflective. *British Medical Journal*, 336, 827-30.
- Du Toit, P. 2008. Critical reflection for improving assessment. In: Maree, K, Fraser, WJ & Blom, R (Eds.) *Outcomes-based assessment: Facilitating best practice in classrooms*. Sandown: Heinemann, 251-64.

- Dyrbye, LN, Thomas, MR, Harper, W, Massie, F, Power, DV, Eacker, A, Szydlo, DW, Novotny, PJ, Sloan, JA & Shanafelt, TD. 2009. The learning environment and medical student burnout: A multicentre study. *Medical Education*, 43, 274-82.
- Dyrbye, LN, Thomas, MR, Power, DV, Durning, S, Moutier, C, Massie (Jr), FS, Harper, W, Eacker, A, Szydlo, DW, Sloan, JA & Shanafelt, TD. 2010. Burnout and serious thoughts of dropping out of medical school: A multi-institutional study. *Academic Medicine*, 85, 94-102.
- Edelman, N & Guttman, N. *Health of the public: An academic challenge* [Online]. Available from: <http://www.rwjf.org/reports/npreports/healthpublic.htm> [Accessed 20 August 2013].
- Elam, CL, Sauer, MJ, Stratton, TD, Skelton, J, Crocker, D & Musick, DW. 2003. Service learning in the medical curriculum: Developing and evaluating an elective experience. *Teaching and Learning in Medicine*, 15, 194-203.
- Essary, A. 2011. The impact of social media and technology on professionalism in medical education. *The Journal of Physician Assistant Education*, 22, 50-3.
- FAIMER [Homepage]. 2012. Available from: <http://www.faimer.org/> [Accessed 22 April 2012].
- Fee, E & Bu, L. 2007. Models of public health education: Choices for the future? *Bulletin of the World Health Organization*, 85, 977-79.
- Flick, U. 2007. *Designing qualitative research*. London: Sage Publications Ltd.
- Frenk, J, Chen, L, Bhutta, ZA, Cohen, J, Crisp, N, Evans, T, Fineberg, H, Garcia, P, Ke, Y, Kelley, P, Kistnasamy, B, Meleis, A, Naylor, D, Pablos-Mendez, A, Reddy, S, Scrimshaw, S, Sepulveda, J, Serwadda, D & Zuray, H. 2010. Health professionals for a new century: Transforming education to strengthen health systems in an interdependent world. *The Lancet*, 376, 1923-58.
- Fried, LP, Bentley, ME, Buekens, P, Burke, DS, Frenk, JJ, Klag, MJ & Spencer, HC. 2010. Global health is public health. *The Lancet*, 375, 535-37.
- Gardner, H. 1993. *Multiple intelligences: The theory in practice – a reader*. New York: Basic Books.
- Garr, DR, Lackland, DT & Wilson, DB. 2000. Prevention education and evaluation in US medical schools: A status report. *Academic Medicine*, 75, S14-S21.
- Gawe, N & Heyns, R. 2004. Quality Assurance. In: Maree, K & Fraser, WJ (Eds.) *Outcomes-based assessment*. Sandown: Heinemann. 159-83.
- General Medical Council Education Committee. 2009. *Tomorrow's Doctors. Outcomes and standards for undergraduate medical education*. General Medical Council.
- George, DR & Dellasega, C. 2011. Use of social media in graduate-level medical humanities education: Two pilot studies from Penn State College of Medicine. *Medical Teacher*, 33, e429-e34.
- George, DR & Green, MJ. 2012. Beyond good and evil: Exploring medical trainee use of social media. *Teaching and Learning in Medicine*, 24, 155-57.
- Geyman, JP. 1983. The Oslerian tradition and changing medical education: A reappraisal. *Western Journal of Medicine*, 138, 884-8.
- Giddens, A. 1984. *The constitution of society: Outline of the theory of structuration*. Cambridge: Polity Press.
- Gillam, S & Bagade, A. 2006. Undergraduate public health education in UK medical schools – struggling to deliver. *Medical Education*, 40, 430-36.
- Gillam, S & Maudsley, G. 2009. Public health education for medical students: Rising to the professional challenge. *Journal of Public Health*, 32, 125-31.

- Global Consensus for Social Accountability of Medical Schools. 2010. Available from: <http://healthsocialaccountability.sites.olt.ubc.ca/files/2011/06/11-06-07-GCSA-English-pdf-style.pdf> [Accessed 13 May 2012].
- Grbich, C. 2007. *Qualitative data analysis: An Introduction*. London: Sage Publications Ltd.
- Guest, G, Bunce, A & Johnson, L. 2006. How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18, 59-82.
- Hager, M & Russell, S. 2009. *Revisiting the medical school educational mission at a time of expansion*. Josiah Macy Jr. Foundation.
- Hansman, C. 2001. Context-based adult learning. In: Merriam, SB (Ed.) *The new update on adult learning theory*. San Francisco: Jossey-Bass. 43-51.
- Hanson, JL, Balmer, DF & Giardino, AP. 2011. Qualitative research methods for medical educators. *Academic Pediatrics*, 11, 375-86.
- Hardcastle, TC. 2010. Medical electives in South Africa. *South African Medical Journal*, 100, 194-94.
- Health Professions Council of South Africa. 2007. Questionnaire for self-assessment: Faculties/schools of medicine/dentistry.
- Health Professions Council of South Africa. 2009. Regulations relating to registration of students, undergraduate curricula and professional examinations in medicine. In: Department of Health. Pretoria: Government Gazette.
- Henning, E, Van Rensburg, W & Smit, B. 2004. *Finding your way in qualitative research*. Pretoria: Van Schaik Publishers.
- Herrmann International Africa [Homepage]. 2013. Available from: <http://www.hbdi.co.za/template.html> [Accessed 22 September 2013].
- Hodges, BD. 2010. A tea-steeping or i-doc model for medical education? *Academic Medicine*, 85, S34-S44.
- Holtzman, KZ & Swanson, DB. 2012. Distance learning resources for medical education. Module 4: Multiple choice examinations. CenMEDIC.
- Horton, R. 2010. A new epoch for health professionals' education. *The Lancet*, 376, 1875-77.
- Hunt, JB, Bonham, C & Jones, L. 2011. Understanding the goals of service learning and community-based medical education: A systematic review. *Academic Medicine*, 86, 246-51.
- Huxtable, M. 2009. How do I improve what I am doing in my professional practice and make an original contribution to the knowledge-base of education? *British Educational Research Association Annual Conference*. Manchester: United Kingdom.
- Ijsselmuiden, C, Nchinda, T, Duale, S, Tumwesigye, N & Serwadda, D. 2007. Mapping Africa's advanced public health education capacity: The AfriHealth project. *Bulletin of the World Health Organization*, 85, 914-22.
- Imperato, PJ. 2004. A third world international health elective for US medical students: The 25-year experience of the State University of New York, Downstate Medical Center. *Journal of Community Health*, 29, 337-73.
- Jang, J-H, Alston, J, Tyler, I, Hau, M, Donovan, D, Johnson, I, Shore, B & Shahin, M. 2013. Enhancing undergraduate public health education through public health interest groups. *Academic Medicine*, 88, 1009-14.
- Jeffrey, J, Dumont, RA, Kim, GY & Kuo, T. 2011. Effects of international health electives on medical student learning and career choice. *Family Medicine*, 43, 21-8.
- Jerant, A, Srinivasan, M, Bertakis, KD, Azari, R, Pan, RJ & Kravitz, RL. 2010. Attributes affecting the medical school primary care experience. *Academic Medicine*, 85, 605-13.

- John, B, Cheema, A & Byrne, D. 2012. Raising digital professionalism awareness in undergraduate medical training. *Medical Education*, 46, 1129.
- Johnson, D & Johnson, R. 1991. *Learning together and alone: Cooperative, competitive, and individualistic learning (Third edition)*. Englewood Cliffs, NJ: Prentice Hall.
- Johnson, I, Donovan, D & Parboosingh, J. 2008. Steps to improve the teaching of public health to undergraduate medical students in Canada. *Academic Medicine*, 83, 414-18.
- Joubert, G, Ehrlich, R. (Eds). 2007. *Epidemiology: A research manual for South Africa (Second edition)*. Cape Town: Oxford University Press Southern Africa.
- Karle, H. 2004. International trends in medical education: Diversification contra convergence. *Medical Teacher*, 26, 205-06.
- Kenny, NP, Mann, KV & MacLeod, H. 2003. Role modeling in physicians' professional formation: Reconsidering an essential but untapped educational strategy. *Academic Medicine*, 78, 1203-10.
- Konstant, TL. 2010. *Towards principles and practice for participatory development evaluation in the context of community based organisations*, PhD thesis, University of Pretoria. Available from: <http://upetd.up.ac.za/thesis/available/etd-05302011-163252/> [Accessed 30 March 2012].
- Koplan, JP, Bond, TC, Merson, MH, Reddy, KS, Rodriguez, MH, Sewankambo, NK & Wasserheit, JN. 2009. Towards a common definition of global health. *The Lancet*, 373, 1993-95.
- Krathwohl, DR. 2002. A revision of Bloom's taxonomy: An overview. *Theory into Practice*, 41, 212-18.
- Kruger, C. 2008. Golden Threads of the Undergraduate Medical Curriculum at the University of Pretoria [PowerPoint presentation].
- Lakoff, G & Johnson, M. 1980. *Metaphors we live by*. Chicago: University of Chicago Press.
- Last, JM & Abramson, JH(Eds). 2001. *A dictionary of epidemiology*. New York: Oxford University Press.
- Lauritsen, J. 2008. EpiData data entry, data management and basic statistical analysis system. *Odense: EpiData Association*.
- Lauritsen, J & Bruus, M. 2004. EpiData (version 3.1). A comprehensive tool for validated entry and documentation of data. Odense, Denmark: The EpiData Association.
- Lee, A & Hoyle, E. 2002. Who would become a successful dean of faculty of medicine: Academic or clinician or administrator? *Medical Teacher*, 24, 637-41.
- Lempp, H & Seale, C. 2004. The hidden curriculum in undergraduate medical education: Qualitative study of medical students' perceptions of teaching. *British Medical Journal*, 329, 770-3.
- Lichtman, M. 2010. *Understanding and evaluating qualitative educational research*. Los Angeles: Sage Publications Ltd.
- Lincoln, YS. 2001. Engaging sympathies: Relationships between action research and social constructivism. In: Reason, P & Bradbury, H (Eds.) *Handbook of action research: Participative inquiry and practice*. London: Sage Publications Ltd. 124-32.
- Lingard, L. 2009. What we see and don't see when we look at 'competence': Notes on a god term. *Advances in Health Sciences Education*, 14, 625-28.
- Maeshiro, R. 2008. Responding to the challenge: Population health education for physicians. *Academic Medicine*, 83, 319-20.
- Maeshiro, R, Johnson, I, Koo, D, Parboosingh, J, Carney, JK, Gesundheit, N, Ho, ET, Butler-Jones, D, Donovan, D & Finkelstein, JA. 2010. Medical education for a healthier population: Reflections on the Flexner Report from a public health

- perspective. *Academic Medicine*, 85, 211-19.
- Mann, KV. 2011. Theoretical perspectives in medical education: Past experience and future possibilities. *Medical Education*, 45, 60-68.
- Maree, K & Pietersen, J. 2007. The quantitative research process. In: Maree, K (Ed.) *First Steps in Research*. Pretoria: Van Schaik Publishers, 144-53.
- Mello, RA. 2002. Collocation analysis: A method for conceptualizing and understanding narrative data. *Qualitative Research*, 2, 231-43.
- Merriam, SB. 2009. *Qualitative research: A guide to design and implementation*. John Wiley & Sons.
- Michener, JL, Yaggy, S, Lyn, M, Warburton, S, Champagne, M, Black, M, Cuffe, M, Califf, R, Gilliss, C, Williams, RS, & Dzau VJ. 2008. Improving the health of the community: Duke's experience with community engagement. *Academic Medicine*, 83, 408-13.
- Monrouxe, LV & Rees, CE. 2009. Picking up the gauntlet: Constructing medical education as a social science. *Medical Education*, 43, 196-98.
- Morse, JM, Barrett, M, Mayan, M, Olson, K & Spiers, J. 2002. Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods*, 1, 13-22.
- Murdoch-Eaton, D & Green, A. 2011. The contribution and challenges of electives in the development of social accountability in medical students. *Medical Teacher*, 33, 643-48.
- Naidoo, M. 2005. *I am because we are (A never ending story). The emergence of a living theory of inclusional and responsive practice*. PhD thesis, University of Bath.
- Nieuwenhuis, J. 2007. Qualitative research designs and data gathering techniques. In: Maree, K (Ed.) *First steps in research*. Pretoria: Van Schaik Publishers, 60-122.
- Noffke, SE. 1997. Professional, personal, and political dimensions of action research. *Review of Research in Education*, 22, 305-43.
- Nora, LM. 2010. The 21st century faculty member in the educational process – what should be on the horizon? *Academic Medicine*, 85, S45-S55.
- O'Neill, O. 2002. Public health or clinical ethics: Thinking beyond borders. *Ethics and International Affairs*, 16, 35-45.
- Osman, A, Wardle, A & Caesar, R. 2012. Online professionalism and Facebook - Falling through the generation gap. *Medical Teacher*, 34, e549-e56.
- Out [Homepage]. 2013. Available from: <http://www.out.org.za/> [Accessed 1 August 2013].
- Ozolins, I, Hall, H & Peterson, R. 2008. The student voice: recognising the hidden and informal curriculum in medicine. *Medical Teacher*, 30, 606-11.
- Paice, E, Heard, S & Moss, F. 2002. How important are role models in making good doctors? *British Medical Journal*, 325, 707-10.
- PEN [Homepage]. 2013. Available from: <http://www.pen.org.za/> [Accessed 1 August 2013].
- Petrakova, A & Sadana, R. 2007. Problems and progress in public health education. *Bulletin of the World Health Organization*, 85, 963-65.
- Pithouse, K, Mitchell, C & Moletsane, R. 2009. *Making connections: Self-study and social action*. New York: Peter Lang.
- Postgraduate Medical and Education Board. 2008. Standards for curricula and assessment systems. London: PMETB.
- Public Health Agency of Canada. 2008. Core competencies for public health in Canada. Release 1.0.
- QSR International Pty Ltd. 2008. *NVivo qualitative data analysis software Version 8*.
- Regehr, G. 2010. It's NOT rocket science: Rethinking our metaphors for research in health

- professions education. *Medical Education*, 44, 31-39.
- Riegelman, R. 1991. Medical student myopia syndrome: A recently recognized pan-epidemic. *American Journal of Preventive Medicine*, 7, 254.
- Riegelman, RK, Albertine, S & Persily, NA. 2007. *The educated citizen and public health: A consensus report on public health and undergraduate education*. Council of Colleges of Arts and Sciences.
- Riegelman, RK & Garr, DR. 2008. Evidence-based public health education as preparation for medical school. *Academic Medicine*, 83, 321-26.
- Riggs, G. 2010. Commentary: Are we ready to embrace the rest of the Flexner Report? *Academic Medicine*, 85, 1669-71.
- Roe, K. 2009. *Infusing public health education in the undergraduate curriculum: The experience of a comprehensive university*. Association of American Colleges and Universities.
- Rogers, RR. 2001. Reflection in higher education: A concept analysis. *Innovative Higher Education*, 26, 37-57.
- Rohwer, A. 2012. A document review of the MBChB curriculum to inform enhancement of undergraduate public health (PH), evidence-based health care (EBHC), health systems and services research (HSSR) and infection prevention and control (IPC) teaching. *Fifth National Conference of the South African Association of Health Educationalists*. Bloemfontein: South Africa.
- Rosenberg, SN. 1998. A survey of physicians who studied public health during medical school. *American Journal of Preventive Medicine*, 14, 184-88.
- Saldana, J. 2009. *The coding manual for qualitative researchers*. Los Angeles: Sage Publications Ltd.
- Sánchez, J, Salinas, A, Contreras, D & Meyer, E. 2011. Does the new digital generation of learners exist? A qualitative study. *British Journal of Educational Technology*, 42, 543-56.
- Schiekirka, S, Reinhardt, D, Heim, S, Fabry, G, Pukrop, T, Anders, S & Raupach, T. 2012. Student perceptions of evaluation in undergraduate medical education: A qualitative study from one medical school. *Medical Education*, 12, 45-51.
- Schön, DA. 1987. *Educating the Reflective Practitioner*. Presentation to the American Education Research Association. Washington DC, United States of America.
- Schryer, CF, Lingard, L, Spafford, M & Garwood, K. 2003. Structure and agency in medical case presentations. *Writing selves/writing societies*, 62-96.
- Schwandt, TA (Ed). 2007. *The Sage dictionary of qualitative inquiry*. Los Angeles: Sage Publications Ltd.
- Seggie, JL. 2010. MB ChB curriculum modernisation in South Africa – growing doctors for Africa. *African Journal of Health Professions Education*, 2, 8-14.
- Sharafeldin, E, Soonawala, D, Vandenbroucke, J, Hack, E & Visser, L. 2010. Health risks encountered by Dutch medical students during an elective in the tropics and the quality and comprehensiveness of pre-and post-travel care. *Medical Education*, 10, 89-94.
- Skeff, KM & Mutha, S. 1998. Role models: Guiding the future of medicine. *The New England Journal of Medicine*, 339, 2015-17.
- Skochelak, SE. 2010. A decade of reports calling for change in medical education: What do they say? *Academic Medicine*, 85, S26-S33.
- Snow, CE. 2001. Knowing what we know: Children, teachers, researchers. *Educational Researcher*, 30, 3-9.
- Statacorp. 2011. *Stata Statistical Software: Release 12*. College Station, TX: StataCorp LP.

- Sternszus, R, Cruess, S, Cruess, R, Young, M & Steinert, Y. 2012. Residents as role models: Impact on undergraduate trainees. *Academic Medicine*, 87, 1282-87.
- Stone, DH. 2000. Public health in the undergraduate medical curriculum – can we achieve integration? *Journal of Evaluation in Clinical Practice*, 6, 9-14.
- Strauss, AL & Corbin, JM. 1998. *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks, Calif.: Sage Publications Ltd.
- Ten Have, P. 2004. *Understanding qualitative research and ethnomethodology*. London: Sage Publications Ltd.
- Tosteson, DC. 1979. Learning in medicine. *The New England Journal of Medicine*, 690-4.
- Tyler, IV, Hau, M, Buxton, JA, Elliott, LJ, Harvey, BJ, Hockin, JC & Mowat, DL. 2009. Canadian medical students' perceptions of public health education in the undergraduate medical curriculum. *Academic Medicine*, 84, 1307-12.
- University of Pretoria. *Vision, mission and values* [Online]. Available from: <http://web.up.ac.za/default.asp?ipkCategoryID=1767> [Accessed 22 September 2013].
- University of Witwatersrand. 2012. Report on national meeting held to discuss core public health competencies for health science undergraduates. Johannesburg: University of Witwatersrand.
- Van Der Stoep, SW & Johnston, DD. 2009. *Research methods for everyday life: Blending qualitative and quantitative approaches*. San Francisco, CA.: Jossey-Bass.
- Van Rooyen, M. 2008a. Professor, I'm tired and stressed! *Medical Education*, 42, 516.
- Van Rooyen, M. 2008b. Professor, I'm tired and stressed! *First National Health Sciences Education Conference*. Cape Town, South Africa.
- Von Muhlen, M & Ohno-Machado, L. 2012. Reviewing social media use by clinicians. *Journal of the American Medical Informatics Association*, 19, 777-81.
- Wendland, CL. 2012. Moral maps and medical imaginaries: Clinical tourism at Malawi's College of Medicine. *American Anthropologist*, 114, 108-22.
- Wenger, EC & Snyder, WM. 2000. Communities of practice: the organizational frontier. *Harvard Business Review*, January-February, 139-45.
- Whitehead, C. 2010. Recipes for medical education reform: Will different ingredients create better doctors? A commentary on Sales and Schlaff. *Social Science and Medicine*, 70, 1672-76.
- Whitehead, J. 1989. Creating a living educational theory from questions of the kind, 'How do I improve my practice?'. *Cambridge Journal of Education*, 19, 41-52.
- Whitehead, J. 2008. Preparing a living educational theory, action research proposal, for submission to a university committee for a doctoral research programme. Available from: <http://actionresearch.net/writings/jack/jwarphdprops280508.pdf> [Accessed 28 February 2011].
- Whitehead, J & McNiff, J. 2006. *Action research: Living theory*. London: Sage Publications Ltd.
- Winter, R & Burroughs, S. 1989. *Learning from experience: Principles and practice in action research*. London: Falmer Press.
- Wolvaardt, J, Burch, V, Cameron, D & Du Toit, P. 2013. The bottom line: Tailoring a public health elective to students' needs. *African Journal of Health Professions Education*, 5, 14-18.
- Wolvaardt, L, Blitz, J & Bender, G. 2010. How we made things better in medical education: from service delivery to service-learning. In: Cooksey, MA & Olivares, KT (Eds.) *Quick hits for service-learning*. Bloomington, Indiana: Indiana University Press, 142-44.

- Wood, L. 2011. Creating a living curriculum – An insider approach to curriculum development. In: Bitzer, E & Botha, N (Eds.) *Curriculum inquiry in South African higher education: Some scholarly affirmations and challenges*. Stellenbosch: Sun Media. 285-98.
- Wood, LA, Morar, T & Mostert, L. 2007. From rhetoric to reality: The role of living theory action research in transforming education. *Education as Change*, 11, 67-80.
- Woodward, A. 1994. Public health has no place in undergraduate medical education. *Journal of Public Health*, 16, 389-92.
- Wright, SM, Kern, DE, Kolodner, K, Howard, DM & Brancati, FL. 1998. Attributes of excellent attending-physician role models. *New England Journal of Medicine*, 339, 1986-93.
- Zellmer, DD. 2004. Teaching to prevent burnout in the helping professions. *Analytic Teaching*, 24, 20-25.
- Zuber-Skerritt, O. 1992. *Professional development in higher education: A theoretical framework for action research*. London: Kogan Page Limited.

APPENDIX A: MBChB curriculum outline (2013)

MBChB Curriculum - School of Medicine - Faculty of Health Sciences - First Semester 2013

	3/1	7/1	14/1	21/1	28/1	4/2	11/2	18/2	25/2	4/3	11/3	18/3	25/3	1/4	8/4	15/4	22/4	29/4	6/5	13/5	20/5	27/5	3/6	10/6	17/6	24/6	1/7
I	Orientation & registration 26/1 - 8/2						Gen Physics PHY 131 11/2		People and their Environment MGW 112		Molecular & Cell Biology MLB 111		Long weekend 29/3-4/4		AM 101	M. Term MTL 80		First course in Chemistry World Views Library CMT 151		Science & Academic Views Library EOT 119		Examinations 3/6		Sup exam 24/6		Recess 4/7 - 14/7	
II	BLOCK 3 BOK 280: Homeostasis Prof AM Joubert Intermediary metabolism Control Systems of the Body Internal Milieu						SA 4 GNK 288 Prof MC Bosman Anatomy (Dissection)		SA 4 GNK 288 Prof MC Bosman Anatomy (Dissection)		Recess 29/3 - 7/4		SA 4 GNK 288 Prof MC Bosman Anatomy (Dissection)		BLOCK 2 BOK 284: Medicine/ BOK 283: Dentistry People and their Environment [GNK 222] Forensic Medicine Prof G. Gaayman [GNK 221] People in their Environment Dr L de Toit-Pretorius & Dr M van Rooyen		2 nd Sem starts 8/7 1 st Sem 1 st Exam 24/5-1/7 BOK280: 25/5 AM GPS280: 27/5 GNK285: 24/5 AM&PM BOK284, 283: 1/7 AM										
III	BLOCK 6 GNK 381 Prof JA Ker Heart & Blood Vessels						BLOCK 7 GNK 383 Prof JA Ker Lungs & Chest		SA 12 GNK 385 Dr F Oemar Haematological Malign.		BLOCK 8 BOK 380 Abd & Breast SMO 380		BLOCK 8 BOK 380 Abdomen and Breast Prof TR Mokoena [GNK 313] Abdomen & Abdominal complaints [GNK 314] Mamma		1 st Sem 1 st Exam 24/5-2/7 GNK381: 27/5 AM GNK383: 25/5 AM GPS380: 1/7 BOK380: 2/7 AM GNK385: 24/5 AM												
IV	1. Paediatric rotation		2. Gynaecology rotation		3. Internal Med rotation		BLOCK 13 BOK 482 Nervous system Prof CM Schutte		BLOCK 10 GNK 481 Prof D Raynders Disorders of childhood		BLOCK 11 BOK 480 Prof BG Lindeque Genito-urinary tract conditions		BLOCK 11 BOK 480 Prof BG Lindeque Urinary conditions		[GNK 413] [GNK 413]		Recess 17/6 to 7/7 No Exam										
V	A. Surgery rotation BLOCK 15 GNK 581 Psych & Soc dysfunction Prof JL Roos		B. Psychiatry rotation BLOCK 15 GNK 581 Psych & Soc dysfunction Prof JL Roos		C. Fam Med rotation BLOCK 16 GNK 582 Health and Health care Dr PT Kenny		BLOCK 17 GNK 583 Trauma Prof TR Mokoena & M Ngqolwane		D1. Anaesthesiology		D2. Forensic Medicine		SMO 511/512 Prof JFM Hugo HIV & Drugs		BLOCK 18 BOK 580 Pharmacotherapy Prof OBW Gweh Anaesthesiology Dr S Spilkerman GNK 585 GNK 586		1 st Sem 1 st Exam 2 nd Sem 2 nd Exam Second semester (SIC) starts 24/6										
VI	Stud Internship: Internal Medicine (7w) rotation GNK 683		Stud Internship: Psychiatry (7w) rotation GNK 685		Stud Internship: Neurology (3 1/2 w) GNK 684; Internal Medicine (including Cardiology, Dermatology, Haematology) (3 1/2 w) GNK 683 rotation		SA 13A GNK 689 EDM, DLM, Im Dr NM Oosthuizen		Recess 15-23/6		Second semester starts 24/6																

103rd issue Student registration: 3 January: Year VI (only) - 07:00
3 January: Year IV (only) - 14:00
3 January: International & Financial Needs Year 111
4 January: International & Financial Needs Year 11, IV & V
4 January: Year II - 08:00
4 January: Year III - 08:00
4 January: Year V - 08:00
30 January: MBChB I registration
11 February: MBChB I lectures
(Due to registrations of other courses, no late registrations of MBChB students will be permitted between 7 to 11 January 2013)
EBM - Evidence Based Medicine (Prof P Rheadar)
Imaging - Imaging (Prof ZI Lockhat)
DLM - Diagnostic Laboratory Medicine (Dr NM Oosthuizen)

26 January 1st Years welcoming day
9 February Flag
21 March Human Rights day
29 March Good Friday
1 April Family day
27 April Freedom day
29-30 April W/P lectures
1 May Workers day
2-5 May W/P lectures
10 May Fun day
18 May Open day
16 June Youth day
17 June Public holiday

School quarters

1st quarter 9 Jan - 20 March
2nd quarter 9 April - 21 June

SIC Examinations 8, 10-12 June 2013

MBChB Curriculum - School of Medicine - Faculty of Health Sciences – Second Semester 2013

	8/7 1	15/7 2	22/7 3	29/7 4	5/8 5	12/8 6	19/8 7	26/8 8	2/9 9	9/9 10	16/9 11	23/9 12	30/9 13	7/10 14	14/10 15	21/10 16	28/10 17	4/11 18	11/11 19	18/11 19
I	Recess 4/7-14/7	SA 1 GNK 120 Dr CM Kopete Orientation	SA 3a GNK 127 Prof JFM Hugo People & their Environment	BLOCK 1 BOK 121: Molecule to Organism Prof MC Bosman [GNK 123] Molecule to Cell [GNK 124] Cell to Tissue [GNK 125] Tissue to Organism LCP 180 Long Clin Attach Prog Academic Literacy EOT 120									SA 14 GNK 126 Prof OBW Grobbee Introduction to Clinical Pharmacotherapy Academi LE EOT 120	SA 3b GNK 127 Prof JFM Hugo People & their Environment	Acad Prep 2/10 to 25/10	2 nd Sem 1 st Exam 08/02/13 09:15 09/02/13 10:15 AM 09/02/13 11:15 AM 09/02/13 09:15 AM	2 nd Sem 2 nd Exam 09/02/13 13:15 10/02/13 13:15 AM 10/02/13 14:15 AM 10/02/13 09:15 AM			
II	BLOCK 4a Pathological conditions BOK 295 Dr M Louw [GNK 214] Gen Pathology & Immunology [GNK 215] Principles in Malignancies LCP 280 Long Clin Attach Prog			BLOCK 4b Infectious diseases BOK 297 Dr N Mbelle [GNK 216] Principles of Infectious Diseases [GNK 217] Infectious diseases BLOCK 4 SMO 281 Dr M Louw			SA 3 GNK 282 MRCGP Prof S Ebenau Introduction to Clinical Medicine	SA 9 GNK 286 Prof B de Groot Basic Emergency Case	Block 10a GNK 285 Prof OBW Grobbee Pharmaco-therapy	Acad supp week 18/10 to 19/10	2 nd Sem 1 st Exam 09/10 to 10/10	Remedial Week 4/11-05/11	1 st & 2 nd Sem 2 nd Exam 09/02/13 09:15 AM 09/02/13 10:15 AM 09/02/13 11:15 AM 09/02/13 09:15 AM 09/02/13 10:15 AM 09/02/13 11:15 AM 09/02/13 09:15 AM							
III	BLOCK 9 BOK 382 : Pregnancy and Neonatology Dr N du Plessis [GNK 321] Pregnancy [GNK 322] Neonatology LCP 380 Longitudinal Clinical Attachment Program					BLOCK 9 SMO 382 APM & TWdW [GNK 323] Growth & Development			Block 12a BOK 462 Prof CM Schutte Neonatal system	Acad supp week 30/9 to 4/10	2 nd Sem 1 st Exam 09/10 to 10/10	SA 10 GNK 408 Ms Connie de Klerk Elective 14/10 to 15/11 (4 weeks + 1 week travelling time) NB: 1 st week will be taken to choose an OR 2 nd week is for the Clerkship, week 3 included in the 2 nd Sem 1 st Exam and/or 1 st & 2 nd Sem 2 nd Exam		1 st & 2 nd Sem 2 nd Exam 09/02/13 09:15 AM 09/02/13 10:15 AM 09/02/13 11:15 AM 09/02/13 09:15 AM 09/02/13 10:15 AM 09/02/13 11:15 AM						
IV	6. ENT rotation cont.	7. Ophthalmology rotation		8. Orthopaedic rotation		SA 11a GNK 487 Skin Dr D Tenza	SA 9 GNK 486 Ageing Prof MMTM Ally	SA 11 GNK 487 Skin Dr D Tenza	SA 7 GNK 484 Clinical Endocrinology Prof DG van Zyl	1 st & 2 nd Sem 1 st Exam 09/02/13 09:15 AM 09/02/13 10:15 AM 09/02/13 11:15 AM 09/02/13 09:15 AM 09/02/13 10:15 AM 09/02/13 11:15 AM	SA 6 GNK 385 Dr M van Rooyen Managed Health Care Rotation	1 st & 2 nd Sem 2 nd Exam 09/02/13 09:15 AM 09/02/13 10:15 AM 09/02/13 11:15 AM 09/02/13 09:15 AM 09/02/13 10:15 AM 09/02/13 11:15 AM								
V	Student Internship: Surgery (including Vascular surgery) (7w) rotation GNK 588 (1 st Sem Enrichment 2 nd Exam 25/9-30/9)			Student Internship: Anaesthesiology (31w) GNK 582; Family Medicine (31w) GNK 591 rotation			Student Internship: Orthopaedics (3w) GNK 681; Surg rel sub discip (including Urology 2w, Neurosurgery 1w) (3w) GNK 600 Exam (1w) rotation			1 st Sem 2 nd Exam GNK 600: 20/11 AM Rota: 20/11-20/11 Exam: 20/11										
VI	Student Internship: Obstetrics & Gynaecology (7w) rotation GNK 586			Student Internship: Paediatrics (7w) rotation GNK 587			Student Internship: Cons. Obstetrics (31w) GNK 602; District Health (31w) GNK 688 rotation													

100th issue

10 August
12-13 August
18 September
24 September
18 December
20 December
25 December
26 December
3 January 2014

Education Office
Prof BC Lindeque

National Women's day
Sib-Ethics Braak Away (Prof WvStaden)
Spring day
Heritage day
Day of Reconciliation
UP closes at 10:00
Christmas
Day of Goodwill
UP reopens

School quarters

3rd quarter: 15 July - 20 Sept
4th quarter: 1 Oct - 4 Dec

22/11 Exam Moderation Committee Meeting

SIC MBChB V register at HPCSA: 24 June 2013

Year VI : Declaration ceremony 22 November 2013

SIC Examinations: 15, 18 – 20 November 2013

APPENDIX B: Ethics clearance certificate letter (HS10/05/01)



RESEARCH ETHICS COMMITTEE

CLEARANCE CERTIFICATE

DEGREE AND PROJECT

INVESTIGATOR(S)

DEPARTMENT

DATE CONSIDERED

DECISION OF THE COMMITTEE

CLEARANCE NUMBER :

HS 10/05/01

PhD

Over the conceptual horizon of public health: a living theory of teaching public health to undergraduate medical students

Jacqueline Elizabeth Wolvaardt

Humanities Education

28 October 2013

APPROVED

Please note:

For Masters applications, ethical clearance is valid for 2 years

For PhD applications, ethical clearance is valid for 3 years.

**CHAIRPERSON OF ETHICS
COMMITTEE**

Prof Liesel Ebersöhn



DATE

28 October 2013

CC

Jeannie Beukes
Liesel Ebersöhn
Dr PH du Toit

This ethical clearance certificate is issued subject to the following condition:

1. It remains the students' responsibility to ensure that all the necessary forms for informed consent are kept for future queries.

Please quote the clearance number in all enquiries.

APPENDIX C: Approval letter from the registrar



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Faculty of Education

Faculty of Education

Ethics Committee

10 June 2010

Prof N. Grove
Registrar: University of Pretoria

Permission: Research involving University of Pretoria students

Applicant: Mrs Wolvaart

The Ethics Committee, Faculty of Education recently received an application for research involving University of Pretoria students as research participants. In maintaining with University of Pretoria regulations in this regard, we attach the application form for your consideration.

The application for ethical clearance has already been reviewed by the Ethics Committee, Faculty of Education. During the Ethics Committee meeting on 20 April 2010 the decision was reached to approve the proposed research in terms of ethical considerations.

Kindly find attached to this letter:

1. The completed original ethics application form
2. An official letter conveying the decision of the Faculty of Education Ethics Committee.

Confirmation of your final decision regarding this applicant can be sent to our Ethics office at jeannemeiring@up.ac.za or alternatively you can contact me at liesel.ebersohn@up.ac.za. Your attention to this matter is highly appreciated.

Best wishes,



Prof Liesel Ebersohn
Chair: Ethics Committee
Faculty of Education

In order
mg-
11/6/2010

APPENDIX D: Informed consent form (interviews)



PARTICIPANT INFORMATION LETTER AND INFORMED CONSENT FORM

INDIVIDUAL Interviews

Title of the study: Over the conceptual horizon of public health: a living theory of teaching undergraduate medical students

Dear colleague,

1) INTRODUCTION

I would like to invite you to participate in this phase of the aforementioned study. You are invited to participate in an individual interview on your views and experiences of the inclusion of public health in the undergraduate medical curriculum. Before you agree to take part you should fully understand what is involved. If you have any questions that this leaflet does not fully explain, please do not hesitate to ask Liz Wolvaardt (see number 9 for contact details). This activity is part of a doctoral research project for a PhD (Curriculum and Instructional Design and Development) at the Faculty of Education, University of Pretoria.

2) THE NATURE AND PURPOSE OF THIS STUDY

The aim of the research is to transform my educational practice and to make explicit my growing understanding of my own and others' sense of agency in transforming my / our public health educational practice. In such a way our efforts contribute to the creation of the big picture of public health in the undergraduate medical curriculum at the University of Pretoria.

Implicit in this aim is the desire to more fully live my professional values in my educational practice, transform my practice, generate a living theory of my practice and by so doing allow for the possibility to influence others similarly.

3) PURPOSE OF THE INTERVIEW

The objective of this practitioner-based research is to make public my personal experience of educational practice in the undergraduate medical curriculum. As my practice is informed and affected by both institutional factors and the teaching practice of my colleagues in other Blocks, it is desirable that a broad and diverse range of views of teaching public health in this curriculum are included.

This research is not an evaluation of you, your work or the undergraduate medical curriculum in general, but a search for joint knowledge and understanding on the best strategies to include public health in the undergraduate medical curriculum.

4) EXPLANATION OF PROCEDURES TO BE FOLLOWED

A face-to-face interview will be arranged. The interview should last about 30 minutes and will be conducted in a place that is convenient for you. I will ask you questions relevant to the research topic, related to findings from document analysis, other interviews and/or focus groups.

5) RISK AND DISCOMFORT INVOLVED

Participation in the study will take some of your time and effort to participate in the discussion. You may feel exposed to voice your opinion, but be reassured this is not an evaluation of you or your work.

6) POSSIBLE BENEFITS OF THIS STUDY

The School of Health Systems and Public Health is responsible for the organisation of the teaching of public health in the undergraduate medical curriculum (known as a Golden Thread). This Golden Thread will benefit tremendously from getting the diverse viewpoints of the international academics as part of our endeavour to provide medical students with the best possible learning opportunities. All suggestions for the improvement and enhancement of the learning experience (from academics and students) will inform the practice of teaching of public health so as to better meet the needs of the students, the staff, the University, the regulatory body (HPCSA) and society.

To distribute the information wider, I will make the results and the research report available to participants and plan to submit the results to educational conferences that focus on medical education as well as submit a manuscript for consideration by a peer-reviewed journal.

7) WHAT ARE YOUR RIGHTS AS A PARTICIPANT?

Your participation in this study is entirely voluntary. You may refuse to participate or stop at any time during the study without giving any reason. Your withdrawal will not affect any future professional relationships.

8) HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This study has received written approval from the Research Ethics Committee of the Faculty of Education at the University of Pretoria. A copy of the approval letter is available. The reference number for this study is HS10/05/01.

9) INFORMATION AND CONTACT PERSON

The contact person for the study is Liz Wolvaardt (0721718771 or liz.wolvaardt@up.ac.za) or Dr PH du Toit (012 420 2817 or pieter.dutoit@up.ac.za). For any ethical concerns you wish to lodge, please contact the Chair of the Ethics Committee Prof Liesel Ebersohn at 012 420 2337.

10) COMPENSATION

Your participation is voluntary. No compensation will be given for your participation, however neither are you expected to incur costs.

10) CONFIDENTIALITY

All information that you give will be kept strictly confidential. Please keep the discussion confidential and do not disclose information from the session to other persons. The information that is generated will be

used for research purposes and once we have analysed the information no-one will be able to identify you. Research reports and articles in scientific journals will not include any information that can identify you.

CONSENT TO PARTICIPATE IN THIS STUDY**Individual Interviews**

Title of the study: Over the conceptual horizon of public health: a living theory of teaching undergraduate medical students

I confirm that the person asking my consent to take part in this study has told me about the nature, process, discomforts and benefits of the study. I also received, read and understood the above written information (Information Leaflet and Informed Consent) regarding the study. I am aware that the results of the study, including personal details, will be anonymously processed into research reports. I am participating willingly. I have had time to ask questions and have no objection to participate in the study. I understand that there is no penalty should I wish to discontinue with the study and my withdrawal will not affect my professional standing in any way.

I have received a signed copy of this informed consent agreement.

Participant's name:(Please print)

Participant's signature:..... Date.....

Person seeking consent: .Mrs JE Wolvaardt

Signature:..... Date:.....

Supervisor's Name: Dr PH du Toit

Supervisor's signature: Date:

CONSENT FOR THE VIDEO-TAPING OF THE INTERVIEW

I herewith give consent that the interview may be videotaped. I understand that the recording will only be used for this study. Once the study has been concluded the audiovisual material will be archived with the other data collected for this study according to the regulations of the University of Pretoria. Should the researcher wish to use any audiovisual material for any other purpose, additional written permission will be sought.

Participant's name:.....(Please print)

Participant's signature:..... Date.....

Person seeking consent: .Mrs JE Wolvaardt

Signature:..... Date:.....

Supervisor's Name: Dr PH du Toit

Supervisor's signature: Date:

APPENDIX E: Informed consent form (workshops)



PARTICIPANT INFORMATION LETTER AND INFORMED CONSENT FORM

FOCUS GROUP INTERVIEWS: STAFF

Title of the study: Over the conceptual horizon of public health: a living theory of teaching undergraduate medical students.

Dear colleague,

1) INTRODUCTION

I would like to invite you to participate in this phase of the aforementioned study. You are invited to participate in a focus group interview on your views and experiences of participating in the development, teaching and/or assessment of public health in one or more undergraduate modules in the medical curriculum. Before you agree to take part you should fully understand what is involved. If you have any questions that this leaflet does not fully explain, please do not hesitate to ask the facilitator (see point number 9 for contact details). This activity is part of a doctoral research project for a PhD (Curriculum and Instructional Design and Development) at the Faculty of Education, University of Pretoria.

2) NATURE AND PURPOSE OF THIS STUDY

The aim of the research is to transform my educational practice and to make explicit my growing understanding of my own and others' sense of agency in transforming my / our public health educational practice. In such a way our efforts contribute to the creation of the big picture of public health in the undergraduate medical curriculum at the University of Pretoria.

Implicit in this aim is the desire to more fully live my professional values in my educational practice, transform my practice, generate a living theory of my practice and by so doing allow for the possibility to influence others similarly.

3) PURPOSE OF THE FOCUS GROUP INTERVIEW

As an academic staff member who is/was involved in the teaching of public health your experience, insights and perspectives are invaluable. Your honest views can contribute to the success of the focus group by identifying the optimum strategies for teaching public health in the medical curriculum.

This research is not an evaluation of you, your work or the undergraduate medical curriculum in general, but a search for joint knowledge and understanding on the best strategies to include public health in the undergraduate medical curriculum.

4) EXPLANATION OF PROCEDURES TO BE FOLLOWED

The focus group will be conducted as a group discussion which will last about two hours. The facilitator will ask the group questions that result from document analysis, interviews as well as from your own experience of teaching public health in the undergraduate medical curriculum.

You will also be asked to complete a short anonymous form with your demographical data. The facilitator will summarise the data for the group as a whole and then destroy the originals. No-one else will have access to the individual information.

The discussion will be video-recorded for the purposes of capturing detail. All comments are confidential and will never be attributed to individual participants in the reports. Only myself and my validation group will have access to the footage.

5) RISK AND DISCOMFORT INVOLVED

By participating in this focus group you may experience some discomfort as you will be asked questions relating to your teaching practice and the teaching practice of the Golden Thread in general. As you will be participating together with other colleagues you might feel exposed to voice your opinion, but be assured this is not an evaluation of you or your work. If any questions make you feel uncomfortable, you need not answer them if you don't want to.

6) POSSIBLE BENEFITS OF THIS STUDY

The School of Health Systems and Public Health is responsible for the organisation of the teaching of public health in the undergraduate medical curriculum (known as a Golden Thread). This Golden Thread will benefit tremendously from getting the diverse viewpoints of the academic staff members as part of our endeavour to provide medical students with the best possible learning opportunities. All suggestions for the improvement and enhancement of the learning experience (from staff and students) will inform the practice of teaching of public health so as to better meet the needs of the students, the staff, the University, the regulatory body (HPCSA) and society.

To distribute the information wider, I will make the results and the research report available to participants and plan to submit the results to educational conferences that focus on medical education as well as submit a manuscript for consideration by a peer-reviewed journal.

7) WHAT ARE YOUR RIGHTS AS A PARTICIPANT?

Your participation in this focus group is entirely voluntary. You may refuse to participate or stop at any time during the interview without giving any reason. Your withdrawal will not affect your future professional relationships.

8) HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This study has received written approval from the Research Ethics Committee of the Faculty of Education at the University of Pretoria. A copy of the approval letter is available. The reference number for this study is HS10/05/01.

9) INFORMATION AND CONTACT PERSON

The contact person for this study is Liz Wolvaardt (tel: 072 171 8771 or liz.wolvaardt@up.ac.za) or Dr PH du Toit (012 420 2817 or pieter.dutoit@up.ac.za). For any ethical concerns you wish to lodge, please contact the Chair of the Ethics Committee Prof Liesel Ebersohn at 420 2337.

10) COMPENSATION

Your participation is voluntary. No compensation will be given for your participation, however neither are you expected to incur costs.

11) CONFIDENTIALITY

All information that you give will be kept strictly confidential. Please keep the discussion confidential and do not disclose information from the session to other persons. The information that is generated will be used for research purposes and once we have analysed the information no-one will be able to identify you. Research reports and articles in scientific journals will not include any information that can identify you.

CONSENT TO PARTICIPATE IN THIS STUDY



FOCUS GROUP INTERVIEWS: STAFF

Title of the study: Over the conceptual horizon of public health: a living theory of teaching undergraduate medical students

I confirm that the person asking my consent to take part in this study has told me about the nature, process, discomforts and benefits of the study. I also received, read and understood the above written information (Information Leaflet and Informed Consent) regarding the study. I am aware that the results of the study, including personal details, will be anonymously processed into research reports. I am participating willingly. I have had time to ask questions and have no objection to participate in the study. I understand that there is no penalty should I wish to discontinue with the study and my withdrawal will not affect my professional standing in any way. I have received a signed copy of this informed consent agreement.

Participant's name :(Please print)

Participant's signature:..... Date.....

Person seeking consent: .Mrs JE Wolvaardt

Signature:..... Date 12 April 2010

Supervisor's Name: Dr PH du Toit

Supervisor's signature: Date: 12 April 2010

CONSENT FOR THE VIDEO-TAPING OF THE FOCUS GROUP

I herewith give consent that the interview may be videotaped. I understand that the recoding will only be used for this study. Once the study has been concluded the audiovisual material will be archived with the other data collected for this study according to the regulations of the University of Pretoria. Should the researcher wish to use any audiovisual material for any other purpose, additional written permission will be sought.

Participant's name:..... (Please print)

Participant's signature:..... Date:

Person seeking consent: .Mrs JE Wolvaardt

Signature:..... Date:

Supervisor's Name: Dr PH du Toit

Supervisor's signature: Date:.....

APPENDIX F: Informed consent form (School of Medicine documents)

Permission to access records / files / written material

Dear colleague,

Title of the study: Over the conceptual horizon of public health: a living theory of teaching undergraduate medical students

Type of permission requested	
A. Permission to access individual records (PowerPoint presentations etc)	
B. Permission to access institutional documents (Block books, minutes)	
C. Detail of documents requested:	

I am a doctoral student (Curriculum and Instructional Design and Development) at the Faculty of Education, University of Pretoria and this activity is part of a research project.

The aim of the research is to transform my educational practice and to make explicit my growing understanding of my own and others' sense of agency in transforming my / our public health educational practice. In such a way our efforts contribute to the creation of the big picture of public health in the undergraduate medical curriculum at the University of Pretoria.

This research is not an evaluation of you, your work or the undergraduate medical curriculum in general, but a search for joint knowledge and understanding on the best strategies to include public health in the undergraduate medical curriculum.

As part of the research I wish to map out all public-health related activities in the medical curriculum so as to better understand the current full extent of the curriculum. Part of this process also includes the construction of how we conceptualise the curriculum and what strategies we utilise in the teaching of public health concepts. Some of this information is embedded in documents such as minutes of meetings (e.g. the Golden Thread Committee). This document review will form the basis for the subsequent focus groups and individual interviews with key staff members.

This study has received written approval from the Research Ethics Committee of the Faculty of Education at the University of Pretoria. A copy of the approval letter is available. The reference number for this study is HS10/05/01.

The contact person for the study is Liz Wolvaardt (0721718771) or liz.wolvaardt@up.ac.za or Dr PH du Toit (012 420 2817 or pieter.dutoit@up.ac.za). For any ethical concerns you wish to lodge, please contact the Chair of the Ethics Committee, Prof Liesel Ebersohn at 420 2337.

I herewith request permission to use the documents as outlined under Section C (above).

We intend to publish the findings of the study in a professional journal and/ or to present them at professional meetings like symposia, congresses, or other meetings of such a nature. Only aggregated information (not-individual) information will be used. Should I wish to use individual examples to illustrate innovative or excellent practice, then separate written consent will be requested.

Yours sincerely,

_____ Date:
Mrs J E Wolvaardt (student)

_____ Date:
Dr PH du Toit (promoter)

Permission to use my documents or the documents of this committee (as specified in section C) for research purposes only is hereby granted.

Title and name of person: _____

Position on the Committee (if applicable): _____

Signature: _____

Date: _____

APPENDIX G: Informed consent form (School of Health System and Public Health documents)

Permission to access records / files / written material

Dear colleague,

Title of the study: Over the conceptual horizon of public health: a living theory of teaching undergraduate medical students

Type of permission requested	
D. Permission to access individual records (PowerPoint presentations etc)	
E. Permission to access institutional documents (Block books, minutes etc)	X
F. Detail of documents requested: <ul style="list-style-type: none"> • Minutes of SHSPH undergraduate meetings (2004; 2005; 2006; 2008) • Document: Inputs into the new curriculum: Community Health (CH) - Family Medicine (FM), - Community Based Education (CBE) and accompanying competencies (undated documents) 	

I am a doctoral student (Curriculum and Instructional Design and Development) at the Faculty of Education, University of Pretoria and this activity is part of a research project.

The aim of the research is to transform my educational practice and to make explicit my growing understanding of my own and others' sense of agency in transforming my / our public health educational practice. In such a way our efforts contribute to the creation of the big picture of public health in the undergraduate medical curriculum at the University of Pretoria.

This research is not an evaluation of you, your work or the undergraduate medical curriculum in general, but a search for joint knowledge and understanding on the best strategies to include public health in the undergraduate medical curriculum.

As part of the research I wish to map out all public-health related activities in the medical curriculum so as to better understand the current full extent of the curriculum. Part of this process also includes the construction of how we conceptualise the curriculum and what strategies we utilise in the teaching of public health concepts. Some of this information is embedded in documents such as minutes of meetings (e.g. the Golden Thread Committee). This document review will form the basis for the subsequent focus groups and individual interviews with key staff members.

This study has received written approval from the Research Ethics Committee of the Faculty of Education at the University of Pretoria. A copy of the approval letter is available. The reference number for this study is (HS10/05/01).

The contact person for the study is Liz Wolvaardt (0721718771) or liz.wolvaardt@up.ac.za or Dr PH du Toit (012 420 2817 or pieter.dutoit@up.ac.za). For any ethical concerns you wish to lodge, please contact the Chair of the Ethics Committee, Prof Liesel Ebersohn at 420 2337.

I herewith request permission to use the documents as outlined under Section C (above).

We intend to publish the findings of the study in a professional journal and/ or to present them at professional meetings like symposia, congresses, or other meetings of such a nature. Only aggregated information (not-individual) information will be used. Should I wish to use individual examples to illustrate innovative or excellent practice, then separate written consent will be requested.

Yours sincerely,

_____ Date:
Mrs J E Wolvaardt (student)

_____ Date:
Dr PH du Toit (promoter)

Permission to use my documents or the documents of this committee (as specified in section C) for research purposes only is hereby granted.

Title and name of person: _____

Position on the Committee (if applicable): _____

Signature: _____

Date: _____

APPENDIX H: Informed consent form and questionnaire (paper-based medical student survey)

INFORMATION LEAFLET & INFORMED CONSENT FOR ANONYMOUS QUESTIONNAIRES

Researcher's name: Lehlohonolo Majake

Student Number: 99094895

Department of Public Health Medicine

University of Pretoria

Dear Student,

The insight of second year medical and dental students to Public Health as a discipline

Good Morning!

I am a Public Health Registrar in the School of Health Systems and Public Health in, University of Pretoria.

You are invited to volunteer to participate in my research project on: **The insight of second year medical and dental students to Public health as a discipline.**

This letter gives information to help you to decide if you want to take part in this study. Before you agree you should fully understand what is involved. If you do not understand the information or have any other questions, do not hesitate to ask us. You should not agree to take part unless you are completely happy about what we expect of you. For enquiries: Dr Lehlohonolo Majake (0823141827) or Liz Wolvaardt (072 1718771).

The HPCSA requirements relating to curricula and learning approach for undergraduate studies states that medical public health as a theme shall feature prominently throughout the curriculum. Despite this however many medical students have very limited knowledge on Public Health as a medical discipline.

It is therefore apparent that Public Health needs to become a prominent feature in the training of undergraduate medical and dental students.

With the aim of transforming the public health educational practice, the School of Health Systems and Public Health would like to have a clear indication on how much the medical students of the University of Pretoria know about public health.

The **overall objective** of this student-based research is to make public the amount of Public Health knowledge of that the undergraduate medical curriculum generates.

This research is not an evaluation of you and will in no way bias your performance in SMO211. It is merely research on existing knowledge and understanding on Public Health in undergraduate level to aid in improving the undergraduate medical curriculum.

We would like you to complete a questionnaire. This may take about 15 minutes.

We will collect the questionnaire from you, once you have completed the questionnaire, please pass it on to the end of the aisle. Should you require additional time, you are welcome to place it in the MBChB /BChD II box in front of the class. It will be kept in a safe place to ensure confidentiality. Please do not write your name on the questionnaire.

We are available to help you with the questionnaire should you have any questions.

This phase is part of the study which has received Research Ethics Committee approval. The study is: Over the conceptual horizon of public health: a living theory of teaching undergraduate medical students (HS10/05/01).

Your participation in this study is voluntary. You can refuse to participate or stop at any time without giving any reason. As you do not write your name on the questionnaire, you give us the information anonymously. Once you have given the questionnaire back to us, you cannot recall your consent. We will not be able to trace your information. Therefore, you will also not be identified as a participant in any publication that comes from this study.

Note: The implication of completing the questionnaire is that informed consent has been obtained from you. Thus any information derived from your form (which will be totally anonymous) may be used for e.g. publication, by the researchers.

Questionnaire number: First number must indicate year e.g. 2	2			
Record number				

Please indicate your answers with an X in the spaces indicated.

1. Please indicate your gender	1	Male		
	2	Female		

2. Please indicate your degree	1	Medicine		
	2	Dentistry		

3. How often do you access/use each of the following?			Never	Seldom	Once a day	Several times a day
	1	Facebook				
	2	Twitter				
	3	LinkedIn				
	4	Google+				
	5	Blogs				
	6	UP website (including ClickUP)				

4. Would you read information about public health if it could be found in any of these spaces?			Yes	No	Maybe
	1	Facebook			
	2	Twitter			
	3	Blogs on UP page			

5. Have you ever visited the School of Health Systems and Public Health Facebook page?	1	Yes	
	2	No	

Question 6: Although we are all clear what we mean by concepts such as surgery, many of us will understand public health in different ways. What do YOU think public health is? [Tip: there is no wrong answer, it is an opinion]

		True	False	Unsure	
7. Test your knowledge of the discipline of public health!	1	Family medicine is a core sub-discipline in public health			
	2	Restricting access to guns is a key public health intervention			
	3	A jetsetter businessman would benefit from the work of a public health specialist			
	4	Eczema is a condition that needs a public health intervention			
	5	Public health refers to provision of clinical care for the poor & underserved			
	6	Meningococcal meningitis is a public health emergency			
	7	The medical treatment of tuberculosis is not a public health intervention			
	8	Education is the ultimate answer to poverty alleviation			
	9	Public Health Medicine specialists usually work at district hospitals			
	10	Public health requires knowledge of local cultural systems			

		Strongly Disagree	No Opinion	Agree	Strongly Agree	
8. For each of the following beliefs/values and behaviours, indicate your level of agreement that it is <u>emphasized in your medical studies to date</u>	1	A commitment to advocate for access to health care for members of traditionally underserved populations.				
	2	A commitment to decision making so that limited health resources can be shared fairly to the benefit of every individual in the community.				
	3	A commitment to communication that can persuade individuals, families and communities to become partners in their pursuit of health.				
	4	A commitment to understanding the determinants of health inherent in the physical and social environment.				
	5	A commitment to managerial skills to make better decisions, to work within a team with other partners for health and social development.				

Question 9: Think about your medical studies to date and rate each of the following areas. Remember that it might not have been stand-alone lectures but could have been included in other topics.

	Topic	Inadequate	Appropriate	Excessive	Not done any yet
1	Public health				
2	Role of community health (and/or social service) agencies				
3	Health promotion and disease prevention				
4	Screening for diseases				
5	Infectious disease prevention including immunization				
6	Health surveillance strategies				
7	Clinical epidemiology				
8	Biostatistics				
9	Evidence-based medicine				
10	Occupational medicine				
11	Environmental health				
12	Determinants of health, including social determinants and culture				
13	Global health Issues				
14	Health policy				
15	Health care system				
16	Medical economics				
17	Behavioural sciences				
18	Drug and alcohol abuse				

Please note that Question 8 and Question 9 have been adapted from the (c)2011 Association of American Medical Colleges. Used by permission.

THANK YOU FOR PARTICIPATING!

Visit our Facebook page at: www.facebook.com/SHSPH

APPENDIX I: Informed consent form and questionnaire (elective needs assessment)



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA



Participants' Information Leaflet and Informed Consent: Needs Assessment Questionnaire

Researcher's name: Liz Wolvaardt (072 1718771)

School of Health Systems and Public Health (University of Pretoria)

Dear student,

I am a lecturer at the School of Health Systems and Public Health (SHSPH) at the University of Pretoria and you are invited to volunteer to participate in our research project entitled **“Characteristics of community-based public health electives that would meet the needs of our students, our partners and ourselves”**. We will be focusing on exploring what the characteristics of community-based public health electives are that would meet the needs of our students, our partners and ourselves.

This letter gives information to help you to decide if you want to take part in this study. Before you agree, you should fully understand what is involved. If you do not understand the information or have any other questions, do not hesitate to ask us. You should not agree to take part unless you are completely happy about what is expected of you. The Research Ethics Committee of the University of Pretoria, Faculty of Health Sciences has granted written approval for this study (73/2011).

Phases of the study: In the next phase of the study we will explore the perceptions of students, and community partners (NGO staff / facilitators of elective rotations) and academic staff who participate in the community-based public health electives. But in order to do this we need to understand the factors that influence your decisions when making choices concerning your elective before we can design appropriate public health electives. So this phase of the study will only ask questions around these factors.

Your participation: Your participation in this study is voluntary and you can refuse to participate or stop at any time without giving any reason. As you do not write your name on the questionnaire, you give us the information anonymously. Once you have given the questionnaire back to us, you cannot recall your consent. We will not be able to trace your information. Therefore, you will also not be identified as a participant in any publication that comes from this study.

Benefits and risks: The School of Health Systems and Public Health is responsible for the organisation of the teaching of public health in the undergraduate medical curriculum (known as a Golden Thread). All suggestions for the improvement and enhancement of the learning experience will inform the practice of teaching of public health so as to better meet the needs of the students, the staff (also of the partner organizations) and the broader society. However participation in the study will take some of your time and effort and you may feel exposed to voice your opinion, but be reassured this is not an evaluation of you or your personal preferences with regard to elective choices.

What is expected of you: For the purpose of this phase of the study, we would like you to take 10 minutes to complete a questionnaire.

Data storage: Questionnaires will be kept in a safe place to ensure confidentiality. Please do not write your name on the questionnaire. We will be available to help you with the questionnaire.

Note: The implication of completing the questionnaire is that informed consent has been obtained from you. Thus any information derived from your form (which will be totally anonymous) may be used for e.g. publication, by the researchers.

We sincerely appreciate your help: [Liz Wolvaardt](#)

Student Needs Assessment Questionnaire (2011)

Please indicate your answers with an X in the spaces indicated.

In general, how would you rate the usefulness of the information presented with regard to the electives?	1.	Not at all useful	
	2.	Somewhat useful	
	3.	Very useful	

Have you already chosen what you would like to do in the elective this year ?	1.	No, I have not given it any thought at all	
	2.	No, I have been thinking but am still not sure	
	3.	Yes, I have decided on what I want to do	

If you have already made a final selection on the elective, what would you say were your reasons?		Yes	No	N/A
1.	I know someone who works there			
2.	A previous student recommended the experience			
3.	Other reason: Please specify			

How important are the following factors to YOU when choosing an elective?		Essential	Important	Unimportant	N/A
1.	The place I go to must be on a public transport route.				
2.	The place I go to must be close to home				
3.	I want to learn more about something that is already in the curriculum				

APPENDIX I Informed consent form and questionnaire (elective needs assessment)

	Please tell us what your interest is:			
d.	I want to learn something that is not in my curriculum			
	If you know what you are interested in, please tell us:			
e.	Other factors not listed previously (please specify):			

Please indicate your level of interest in a community-based elective that will have a public health theme (e.g. outbreak investigation; exploring leadership in health care; work of the non-governmental organizations in service delivery etc.)	1.	Interested	
	2.	Not sure, need more detail	
	3.	Not Interested	

Besides LCAS and Block 2, do you have any past experience in working in a community setting?	1.	No	
	2.	Yes	
	3.	If yes, please tell us about it.	

APPENDIX I Informed consent form and questionnaire (elective needs assessment)

Please indicate your level of agreement with the following statement: “I have a good understanding of the health-related needs and problems facing the community in which I live”	1.	Strongly disagree	
	2.	Disagree somewhat	
	3.	Uncertain	
	4.	Agree somewhat	
	5.	Strongly agree	

As you will be off-site and have to cover your own costs, what would you consider as a reasonable cost (transport etc.) for the month of the elective?	1.	< R500	
	2.	R500-R1000	
	3.	>R1000	

THANK YOU FOR PARTICIPATING IN THIS STUDY.

APPENDIX J: Ethics approval letter (73/2011)

The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.

* FWA 00002567, Approved dd 22 May 2002 and Expires 13 Jan 2012.

* IRB 0000 2235 IORG0001762 Approved dd 13/04/2011 and Expires 13/04/2014.


 UNIVERSITEIT VAN PRETORIA
 UNIVERSITY OF PRETORIA
 YUNIBESITHI YA PRETORIA

 Faculty of Health Sciences Research Ethics Committee
 Fakulteit Gesondheidswetenskappe Navorsingsetiekcommittee

DATE: 21/04/2011

PROTOCOL NO.	73/2011
NEW TITLE	Characteristics of community-based public health electives that would meet the needs of our students, our partners and ourselves at the University of Pretoria
INVESTIGATOR	Principal Investigator: JE Wolvaardt
SUBINVESTIGATOR	None
SUPERVISOR	Prof Vanessa Burch E-Mail: Vanessa.Burch@uct.ac.za
DEPARTMENT	Dept: School of Health Systems and Public Health E-Mail: liz.wolvaardt@up.ac.za
STUDY DEGREE	SAFRI fellowship
SPONSOR	Not Applicable
MEETING DATE	20/04/2011

The Protocol and Informed Consent Document were approved on 20/04/2011 by a properly constituted meeting of the Ethics Committee subject to the following conditions:

1. The approval is valid for 1 year period [till the end of December 2012], and
2. The approval is conditional on the receipt of 6 monthly written Progress Reports, and
3. The approval is conditional on the research being conducted as stipulated by the details of the documents submitted to and approved by the Committee. In the event that a need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

Members of the Research Ethics Committee:

Prof M J Bester
 Prof R Delpert

(female) BSc (Chemistry and Biochemistry); BSc (Hons)(Biochemistry); MSc(Biochemistry); PhD (Medical Biochemistry)
 (female) BA et Scien. B Curationis (Hons) (Intensive care Nursing), M Sc (Physiology), PhD (Medicine), M Ed Computer Assisted Education

Prof JA Ker
 Dr NK Likibi
 Prof TS Marcus
 Dr MP Mathebula
 Prof A Nienaber
 Mrs MC Nzeku
 Prof L M Ntlhe
 Snr Sr J Phatoli
 Dr R Reynders

MBChB; MMed(Int); MD – Vice-Dean (ex officio)
 MBBCh – Representing Gauteng Department of Health
 (female) BSc(LSE), PhD (University of Lodz, Poland) – Social scientist
 (female) Deputy CEO: Steve Biko Academic Hospital
 (female) BA(Hons)(Wits); LLB; LLM(UP); PhD; Dipl.Datametrics(UNISA) – Legal advisor
 (female) BSc(NUL); MSc(Biochem)(UCL, UK) – Community representative
 MBChB(Natal); FCS(SA)
 (female) BCur(Eet.A); BTec(Oncology Nursing Science) – Nursing representative
 MBChB (Prêt), FCPaed (CMSA) MRCPCH (Lon) Cert Med. Onc (CMSA)

Dr T Rossouw	(female) M.B., Ch.B. (cum laude); M.Phil (Applied Ethics) (cum laude), MPH (Biostatistics and Epidemiology (cum laude), D.Phil
Dr L Schoeman	(female) B.Pharm, BA(Hons)(Psych), PhD – Chairperson: Subcommittee for students’ research
Mr Y Sikweyiya	MPH; SARETI Fellowship in Research Ethics; SARETI ERCTP; BSc(Health Promotion) Postgraduate Dip (Health Promotion) – Community representative
Dr R Sommers	(female) MBChB; MMed(Int); MPharmMed – Deputy Chairperson
Prof TJP Swart	BChD, MSc (Odont), MChD (Oral Path), PGCHE – School of Dentistry representative
Prof C W van Staden	MBChB; MMed (Psych); MD; FCPsych; FTCL; UPLM - Chairperson

DR R SOMMERS; MBChB; MMed(Int); MPharmMed.

Deputy Chairperson of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria

APPENDIX K: Partner questionnaire



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA



Interview schedule for partners (post-placement of students)

1. What were your expectations for this placement?
2. If you compare your expectations of the placement with what actually happened, did it meet these expectations? Please give some explanation for your answer.
3. What motivated you (or your organization) into accepting student placements?
4. What was the effect of having the students for a week/fortnight?
[Tips: *effect on organization; on staff/partner organisation and clients/community (if applicable)*]
5. What effect do you think this elective had on the students?
6. Would you recommend this experience to a peer? Please give reasons.
7. Would you consider participating again next year? Please give reasons.

APPENDIX L: Block chair interview guideline



Interviews with block chairs

Title of the study: Over the conceptual horizon of public health: a living theory of teaching undergraduate medical students

Section A: Demographic Detail

How long have you worked for the University of Pretoria?	1	<1 year	
	2	2-5 years	
	3	6-10 years	
	4	10 years and more	

Your age?	1	20-29 years	
	2	30-39 years	
	3	40-49 years	
	4	50-59 years	
	5	60 + years	

Gender?	1	Male	
	2	Female	

Which department do you work for in the School of Medicine?			
--	--	--	--

Which block do you chair?			
----------------------------------	--	--	--

Did you do your undergraduate medical studies at the University of Pretoria?	1	Yes	
	2	No	

Section B: Block Chairs

- The University of Pretoria has included public health as a Golden Thread in the medical curriculum, so how would you describe the inclusion in this particular Block? *[Probe what are the topics and who teaches each topic: SHSPH, School of Medicine etc]*
- As medical curricula are typically under pressure with regard to high content versus limited time, can one “protect” this Golden Thread? *[Probe regarding what happens if time is required, etc. Also probe what the possibility is to identify the GT in some way in the study guide]*
- Are the public health topics assessed in this Block? *[Probe for how]*
- Do you have any examples or suggestions for good/innovative practice/ strategies with regard to the teaching of public health?
- Do students evaluate the Golden Thread of public health in this block? *[Probe if there is a specific question included in the standard UP questionnaire. If not, explore the possibility to include such as question as part of the standard set of questions.]*
- Universities are under pressure to ensure their curricula are aligned to the local disease burden. If this is possible in your Block, how have you addressed this?
- While remaining locally relevant Universities also try to retain a global perspective. If this is possible in your Block, how have you managed this? *[Probe for class work; exercises]*

APPENDIX M: SHSPH newsletters


SHSPH Weekly NEWS

9 September 2011

From the Chairperson

The SHSPH End of Year function will take place on Friday, 11/11/11. Kathy has circulated an RSVP list, make sure that you put your name on it if you want to attend.

There are still Faculty Gala dinner seats available (Saturday 26 November 2011). Please send Sam an e-mail to reserve your seat(s).

MODULES 12-16 September 2011				
Code	Module Name	Venue	Presenter	Admin
ICX 872	Integrative Case Studies	Pamoja	Senkubuge	Modingoana



WÊRELDBEKER

I hope you are all supporting the Boks on Sunday morning - hopefully they bring the real cup home and not one like this...

Out of office

- Tiaan de Jager will be attending a conference in Spain from 10-17 September. He will be back in office on 19 September. Prof Rheeder will be acting chairperson.
- Daniëls is on leave from 12-16 September. A temporary assistant named Margaret will take care of her duties next week.
- Sain is on leave from 15-16 September.
- Elze is on the bus at Adelaide Tambo.

Intellectual property workshop

The Department of Research and Innovation Support will be presenting a workshop on intellectual property (IP) in conjunction with the Centre for IP law and Adams & Adams on **30 September 2011**. All lecturers are invited to attend.

Please register before 20 September if you wish to attend. A registration form and more information is attached with the newsletter for your convenience.

November Track Exam

All tracks that intend offering a November Track exam must note that the track exam will be written on Wednesday 16 November at 08:00.

Please send details of proposed external examiners to Sam no later than end September so that they can be appointed.

The draft papers should be ready for review by external examiners no later than mid October.

Public Health in the medical curriculum

The second What, Why and How of including public health in the medical curriculum workshop will take place on **Wednesday 21 September 2011**.

Liz would like to invite all who are involved in undergraduate teaching in any way to attend this half-day workshop from 09:00-12:00 in the Boardroom. Please clarify the date!


SHSPH Weekly NEWS

16 September 2011

From the Chairperson

There are still Faculty Gala dinner seats available (Saturday 26 November 2011). Please send Sam an e-mail to reserve your seat(s).

MODULES 19-23 September 2011				
Code	Module Name	Venue	Presenter	Admin
EHM 871	Health Risk Assessment	Bophelo	Farias	Coetzer
CEatUP	Monitoring and Evaluation	Pamoja	Beke	None

Good clinical practice (GCP) course

Quintiles Sub-Saharan Africa has partnered with the University of Pretoria to present future Good Clinical Practice courses. These practical courses will equip research site staff with the relevant knowledge and tools to ensure proper study conduct from start to finish, covering all aspects of the clinical trial life cycle.

WORKSHOP IN GOOD CLINICAL PRACTICE

Date: 20 October 2011
 Course Fee: R1 600 per person
 Venue: Prinshof Campus, BMW Building

The Exec will consider requests for sponsorship for SHSPH staff - please send a motivation to Sam.

REGISTRATION AND ENQUIRIES:

Course Coordinator: Tessa Booysen (tessa.cb@up.ac.za)
 Tel: +27 (0)2 420 5026 Fax: +27 (0)86 631 8564

Out of office

Kuku will be on vacation leave from 21-26 September 2011.

Meetings

Tuesday 20 September
 08:00 AAC
 15:00 Exec
 Friday 23 September
 09:30 APC
 11:00 RESCOM

Deadlines and dates 2011

If a student has a protocol and requires Academic Programme Committee (APC) or Academic Advisory Committee (AAC) approval:

APC (MPH students)

- 21 October (submission deadline 14 October)
- 18 November (submission deadline 11 November)

AAC (MSc, MMed and PhD students)

- 18 October (submission deadline 4 October)
- 15 November (submission deadline 1 November)

If a student is planning to submit to Ethics :

- 26 October (submission deadline 22-26 September)
- 23 November (submission deadline 27-31 October)

Public Health in medical curriculum

The second What, Why and How of including public health in the medical curriculum workshop will take place on **Wednesday 21 September 2011**.

Liz would like to invite all who are involved in undergraduate teaching in any way to attend this half-day workshop from 09:00-12:00 in the Boardroom.

APPENDIX N: Workshop 1 question guideline



FOCUS GROUP INTERVIEWS: STAFF

THEME: INTENDED ACHIEVEMENTS

Section A: Introduction for focus group facilitator

Thank you for joining us for this focus group. As an academic staff member who is/was involved in teaching public health in the undergraduate medical curriculum, your perspectives are valuable. Be reassured this is not an evaluation of you, your work or the undergraduate medical curriculum in general.

The **purpose** of the focus group is to help us in the search for joint knowledge and understanding on the best strategies to include public health in the undergraduate medical curriculum.

By participating in this focus group you will be consenting that the information collected may be used for research purposes. The discussion is video recorded for the purposes of capturing detail, but all comments will be kept confidential and will never be attributed to individual participants. As participants, you can make the focus group successful by being both candid and as specific as possible when discussing different issues.

[Ask permission to video record the interview and explain the form for collection of the demographic detail to adequately describe the composition of the group. Explain that only student and validation group will have access to the material]

As facilitator my main role is to guide you through a conversation based on a set of relevant questions. I will try to make sure that everyone participates and that no one dominates the discussion. Please be sure to speak one at a time so that the tape and video recording will be clear. During this discussion, please be brief and specific. Where there is disagreement, you should talk about your different perspective, but we will not spend time pressing for consensus or reaching agreement. The purpose is not to reach a common view, but to learn about all the possible views.

This focus group is one of a series of focus groups to explore the many aspects of teaching and learning in public health in the medical curriculum and as a result each focus group has a specific line of inquiry or theme.

These themes are:

- Intended achievements of the curriculum
- Optimal teaching and learning strategies
- And any emerging themes that the group wishes to explore *[Add when identified]*

Section B: Academic staff opinions of the intended achievements of the public health curriculum in medicine

It is not the intention to discuss ALL the points in today's session, rather to open up discussion and debate and as a result more than one focus group session will be required and I hope that you will be able to participate in the follow-up sessions on the same theme.

1. What are we hoping to achieve with the inclusion of public health in the medical curriculum? [*Probe word usage such as "student-centred", "outcomes-based", "competencies" etc. to uncover what is meant*]
2. What do you think are the student's expectations of the public health curriculum? Do you think that these expectations are met? Motivate your answer with evidence.
3. Does the current outcome statement of "to evaluate human disease occurrence, causation and control in a healthcare system" adequately or correctly reflect our desired achievements?
4. What would we consider the ideal in this curriculum? What would this ideal look like? [*Probe: knowledge, skills and attitudes*]
5. Who should determine the learning outcomes? [*Probe: SHSPH or School of Medicine and why*]
6. Currently what evidence do we have that students have achieved the learning outcome/s? What evidence would we ideally like to collect in this regard?
7. The Health Professions Council of South Africa (HPCSA) has regulations that guide undergraduate curricula [distribute a copy of the extract]. How does our current teaching and learning curriculum align? What changes should we make (if any)?
8. If we review the envisaged roles of a five-star doctor [distribute a copy of the table of the characteristics of Boelen's five-star doctor], how does our current curriculum address the non-medical (or social) aspects? And what changes, if any, would we make?
9. To what extent is there alignment of the assessment with the learning outcomes and the assessment criteria? Your view on the assessment of students? What and how should we improve?

Closing: Do you have any comments you wish to add to any of the issues we have discussed today? Do you have any questions or themes that you think are worthwhile to explore?

APPENDIX O: Workshop 2 question guideline



FOCUS GROUP INTERVIEWS: STAFF

THEME: OPTIMAL TEACHING AND LEARNING STRATEGIES

Section A: Introduction for focus group facilitator

Thank you for joining us for this focus group. As an academic staff member who is/was involved in teaching public health in the undergraduate medical curriculum, your perspectives are valuable. Be reassured this is not an evaluation of you, your work or the undergraduate medical curriculum in general.

The **purpose** of the focus group is to help us in the search for joint knowledge and understanding on the best strategies to include public health in the undergraduate medical curriculum.

By participating in this focus group you will be consenting that the information collected may be used for research purposes. The discussion is video recorded for the purposes of capturing detail, but all comments will be kept confidential and will never be attributed to individual participants. As participants, you can make the focus group successful by being both candid and as specific as possible when discussing different issues.

[Ask permission to video record the interview and explain the form for collection of the demographic detail to adequately describe the composition of the group. Only the student and members of the validation group will have access to the material].

As facilitator my main role is to guide you through a conversation based on a set of relevant questions. I will try to make sure that everyone participates and that no one dominates the discussion. Please be sure to speak one at a time so that the tape and video recording will be clear. During this discussion, please be brief and specific. Where there is disagreement, you should talk about your different perspective, but we will not

spend time pressing for consensus or reaching agreement. The purpose is not to reach a common view, but to learn about all the possible views.

This focus group is one of a series of focus groups to explore the many aspects of teaching and learning in public health in the medical curriculum and as a result each focus group has a specific line of inquiry or theme.

These themes are:

- Intended achievements of the curriculum
- Optimal teaching and learning strategies
- And any emerging themes that the group wishes to explore *[Add when identified]*

Section B: Academic staff opinions of the intended achievements of the public health curriculum in medicine

It is not the intention to discuss ALL the points in today's session, rather to open up discussion and debate and as a result more than one focus group session will be required and I hope that you will be able to participate in the follow-up sessions on the same theme.

First provide participants with a summary of the previous focus groups concerning the intended outcomes of the curriculum.

1. Please describe your role and responsibilities in teaching public health in this curriculum.
2. In 2009 the Health Professions Council of South Africa (HPCSA) expressed concern at the theoretical workload in UP's medical curriculum. Underlying this concern is evidence from literature that a **heavy theoretical workload** contributes to burnout amongst medical students. There is also evidence in the literature that **poor institutional arrangements** for learning contribute to burnout. Finally there is evidence in the literature that **haphazard teaching** contributes to burnout. How can we adapt our teaching strategies to avoid contributing to the theoretical burden, burnout and haphazard teaching? What tools can we develop/use to reduce the

fragmentation of the Golden Thread of public health (and this includes the student's experience of scattered lectures that appear haphazard). Is there an ideal overarching teaching strategy for teaching public health in the medical curriculum? *[Probe for how participants think learning takes place and what teaching philosophies they have]*

[Explore the use of a standard PowerPoint visual model/metaphor that introduces/sets the scene for all subsequent lectures; development of a study guide for the Golden Thread that spans 5 years; development of a website or resource etc.]

3. If we develop a **visual overarching model/metaphor** to include in our slides, what would this model look like? What would the content be?
4. If we develop a website for public health for our medical students, what would be the ideal content and purpose?
5. In a six-year curriculum, students progressively mature in front of our eyes but are essentially treated/approached as first-years over the entire curriculum. How can we design opportunities for students to express their own sense of **agency**?
6. How would we evaluate our overarching teaching **strategy**?
7. What evidence (if any) do we collect of our current teaching **practice**?
8. What evidence would we ideally like to collect of our teaching **practice**?

Closing: Do you have any comments you wish to add to any of the issues we have discussed today? Do you have any questions or themes that you think are worthwhile to explore?

[Thank participants. Ask permission to contact them for any follow-up questions if necessary at the end of the data collection process.]

APPENDIX P: Biographical data collection sheet

Date:

Demographic details of academic staff participating in the workshops

Department / School in which you work	1	Department of Family Medicine	
	2	SHSPH	
	3	Other: <i>(Please list)</i>	

Type of appointment	1	Joint appointment	
	2	University of Pretoria appointment only	
	3	Gauteng Health appointment only	
	4	Other <i>(Please explain)</i>	

Position in the Department / School	1	Professor	
	2	Associate Professor	
	3	Senior Lecturer	
	4	Lecturer	
	5	Junior lecturer	
	6	Other <i>(Please specify)</i>	

Type of employment	1	Full-time	
	2	Part-time	
If you work part-time, how many hours a week do you work in this department or school?	hours		

How long have you been working in your department or school?	1	Less than six months	
	2	6-12 months	
	3	1-2 years	
	4	3-5 years	
	5	More than 5 years	

APPENDIX Q: American Association of Medical Colleges permission

From: Graduation Questionnaire <GQ@aamc.org>
To: Liz.Wolvaardt@up.ac.za
Date: 2012/06/29 08:01 PM
Subject: RE: Request to use a selection of questions from your 2011 graduation questionnaire

Dear Ms. Wolvaardt:

Thank you for asking for permission to use or adapt items from the 2011 Canadian Graduation Questionnaire for your doctoral project involving South African medical school student assessments of their instruction in public-health. Here's our official permission:

"The Association of American Medical Colleges (AAMC) grants permission to Liz Wolvaardt to adapt or use any question from the AAMC's 2011 Canadian Medical School Graduation Questionnaire for the doctoral project, 'Over the conceptual horizon: a living theory of teaching public health to medical students. This permission is granted through 2012 and 2013 for the purposes of the project.

Any printed material must be accompanied with the following statement:

(c)2011 Association of American Medical Colleges. Used by permission."

Note: This permission covers only your adaptation and use of any AAMC Graduation Questionnaire survey items; it does not cover use of AAMC data presented in a visible display for others to see or to receive in a printed format. Use of such data would require a separate agreement.

Please be in touch with us when the project is completed. We hope you will share with us the results.

With best wishes,

David

David A. Matthew, Ph.D.
GQ Staff
Data Operations and Services
Association of American Medical Colleges
(202) 862-6151
GQ home page: www.aamc.org/data/gq

APPENDIX R: Informed consent form (video-taping of oral defence)

PARTICIPANT INFORMATION LEAFLET AND INFORMED CONSENT FORM

Doctoral presentation (24 February 2010)

Dear colleague,

Title of the study: Over the conceptual horizon of public health: a living theory of teaching undergraduate medical students.

1) INTRODUCTION AND PURPOSE

Thank you for participating in the first public presentation of this doctoral study. I would like to have the session videotaped for two particular reasons:

- 1) As a record of the presentation and the feedback received.
- 2) As a record of professional development and practice for meta-reflection.

Should a website be developed for South African action research living theories, an extract of this presentation could also be posted for academic purposes.

Before you agree to take part you should fully understand what is involved. If you have any questions that this leaflet does not fully explain, please do not hesitate to ask me.

2) WHAT ARE YOUR RIGHTS AS A PARTICIPANT?

Participation is voluntary. If you do not wish to be video-taped, then please bring this to the attention of the cameraman.

3) HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This study has NOT yet received approval from the Research Ethics Committee of the Faculty of Education at the University of Pretoria. This presentation does not form part of the planned data collection activities.

4) INFORMATION AND CONTACT PERSON

The contact person for this study is Liz Wolvaardt (tel: 072 171 8771 or liz.wolvaardt@up.ac.za).

CONSENT FOR THE VIDEO-TAPING OF THE ORAL DEFENCE MEETING

I herewith give consent that my participation in the doctoral presentation may be videotaped. I understand that the recording will only be used for the purposes outlined above.

Participant's name:.....
(Please print)

Participant's signature:..... Date.....

Person seeking consent:
(Please print)

Signature: Date.....

Witness's Name:.....(Please print)

Witness's signature: Date.....

APPENDIX S: POST PLACEMENT QUESTIONNAIRE



Participants' Information Leaflet and Informed Consent: Student Experience Questionnaire

Researcher's name: Liz Wolvaardt (072 1718771)
School of Health Systems and Public Health (University of Pretoria)

Dear student,

I am a lecturer at the School of Health Systems and Public Health (SHSPH) at the University of Pretoria and you are invited to volunteer to participate in our research project entitled "**Characteristics of community-based public health electives that would meet the needs of our students, our partners and ourselves**". We will be focusing on exploring what the characteristics of community-based public health electives are that would meet the needs of our students, our partners and ourselves.

This letter gives information to help you to decide if you want to take part in this study. Before you agree, you should fully understand what is involved. If you do not understand the information or have any other questions, do not hesitate to ask us. You should not agree to take part unless you are completely happy about what is expected of you. The Research Ethics Committee of the University of Pretoria, Faculty of Health Sciences has granted written approval for this study (73/2011).

Phases of the study: In this final phase of the study we will explore the perceptions of students who have attended a community-based public health elective; the organizations that have hosted them as well as SHSPH academic staff. So this phase of the study will only ask questions around your experiences during the elective.

Your participation: Your participation in this study is voluntary and you can refuse to participate or stop at any time without giving any reason. As you do not write your name on the questionnaire, you give us the information anonymously. Once you have given the questionnaire back to us, you cannot recall your consent. We will not be able to trace your information. Therefore, you will also not be identified as a participant in any publication that comes from this study.

Benefits and risks: The School of Health Systems and Public Health is responsible for the organisation of the teaching of public health in the undergraduate medical curriculum (known as a Golden Thread). All suggestions for the improvement and enhancement of the learning experience will inform the practice of teaching of public health so as to better meet the needs of the students, the staff (also of the partner organizations) and the broader society. However participation in the study will take some of your time and effort and you may feel exposed to voice your opinion, but be reassured this is not an evaluation of you or your personal experiences during the elective.

What is expected of you: For the purpose of this phase of the study, we would like you to take 15 minutes to complete a questionnaire.

Data storage: Questionnaires will be kept in a safe place to ensure confidentiality. Please do not write your name on the questionnaire. We will be available to help you with the questionnaire.

Note: The implication of completing the questionnaire is that informed consent has been obtained from you. Thus any information derived from your form (which will be totally anonymous) may be used for e.g. publication, by the researchers.

We sincerely appreciate your help: [Liz Wolvaardt](#)

Student Experience Questionnaire

Please indicate your answers with an X in the spaces indicated.

3. In general, how would you rate the usefulness of the marketing material such as briefing and posters with regard to the public health elective?	1.	Not at all useful	
	2.	Somewhat useful	
	3.	Very useful	

a. If not useful, what should we change?

4. Was it easy to find this marketing material?	1.	Yes	
	2.	No	

3. Did you accomplish your personal learning goals for the week? Please explain.

4. What have you learned about public health/ health systems since participating in this elective (you can pick one or two things)?

5. Describe the most memorable event that happened during your week.

6. What is your overall opinion of the inner-city elective?

7. How would you improve this elective in the future?

8. Do you plan to remain involved in the activities of the NGO in the future? If yes, what are you planning?

9. Please rate your experience					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The staff were friendly					
I felt supported in my learning					
The activity was well organised					
I felt able to participate					
I learned about the work of NGOs					

10. Do you think that this elective experience has contributed to you:		No	Somewhat	Yes	Not applicable
a.	Becoming a healthcare professional				
b.	Developing a sense of citizenship				
c.	Understanding the culture and diversity of others				

d.	Understanding your own views of South African healthcare				
e.	Learning about population-based initiatives				

11. If you answered “**yes**” to any of the statements above, please explain.

12. If you answered “**no**” to any of the statements, please explain.

13. Would you recommend this experience to a peer?	1.	Yes	
	2.	No	
	3.	Unsure	

14. Please give us a brief explanation (such as an example) for your opinion.

THANK YOU FOR PARTICIPATING IN THIS ELECTIVE!

Visit our Facebook page at: www.facebook.com/SHSPH

Your space to write anything you like.....
--